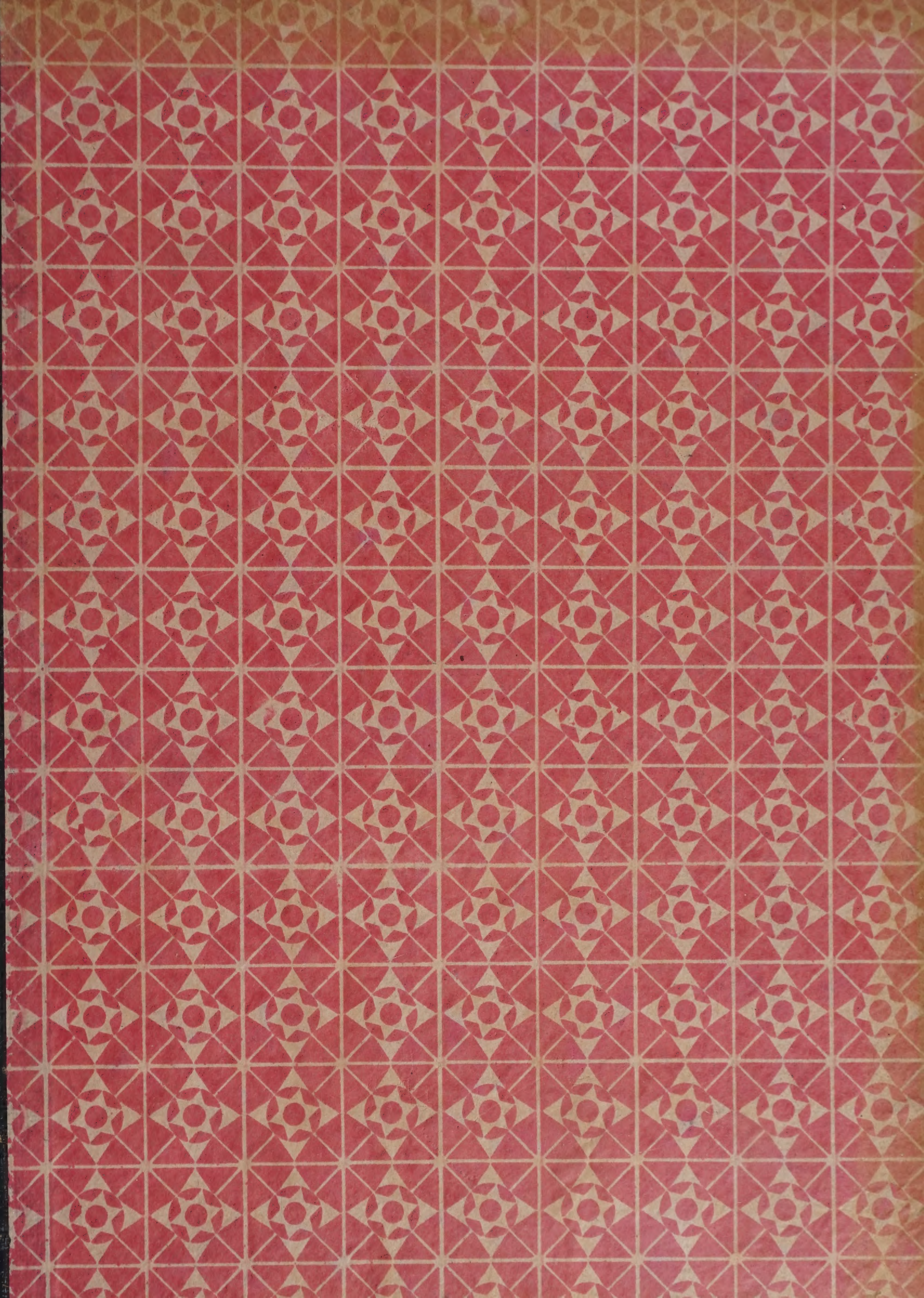

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University News

MONDAY, JANUARY 5, 1987 Rs. 1.50

& DOCUMENTATION
UNIT
23 JAN 1987
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From left to right : Shri P.V. Narasimha Rao, Union Minister of Human Resource Development, Dr. H.N. Sethna, Chairman, Board of Governors, Prof. N.M. Swani, Director at the annual convocation of the Indian Institute of Technology, Delhi.

CLASSIFIED ADVERTISEMENTS

REGIONAL RESEARCH LABORATORY

BHOPAL

(Council of Scientific & Industrial Research)

Advertisement No. 5/86

Applications are invited for the following posts by Regional Research Laboratory, Bhopal under the Council of Scientific and Industrial Research, New Delhi.

(1) Store/Purchase Assistant

One Post : Reserved for S.C. candidate.

Scale : Rs. 1400-40-1800-EB-50-2300.

Qualification and Experience

Candidates should have University Degree preferably in Science or three years Diploma in Engineering with at least two years experience in the line. Age not exceeding 28 years as on 30-1-1987.

Job Requirement

To handle the cases of Store/Purchase and should be conversant with the rules and regulations about release of foreign exchange import of scientific stores against import licence/OGL, clearance of goods at port/customs, insurance/shortlanding claims, refund, monitoring correspondence.

(2) Junior Hindi Translator : One Post.

Scale : Rs. 1400-40-1800-EB-50-2300.

Qualification

Master's degree of a recognised University in Hindi/English with English/Hindi as main subject at degree level.

OR

Master's degree of a recognised University in any subject with Hindi and English as main subjects at degree level.

OR

Master's degree of recognised University in any subject with Hindi/English medium and English/Hindi as a main subject at degree level.

OR

Master's degree in Hindi/English or in any other subject with Hindi/English medium, with English/Hindi as a main subject or as medium of examination at degree level.

OR

Bachelor's degree with Hindi and English as main subjects or either of the two as medium of examination and the other as a main subject plus recognised Diploma Certificate Course in translation from Hindi to English and vice-versa or two years experience of translation work from Hindi to English and vice versa in Central/State Government Offices, including Government of India Undertaking.

Job Requirements

The incumbent will be required to translate official correspondence/scientific literature, etc. from English to Hindi vice versa and any other work that may be assigned.

Age not exceeding 28 years (relaxable for SC/ST/Ex-serviceman as admissible under Government of India rules) as on 30-01-1987.

The merit of the candidates will be judged on the basis of competitive test in Hindi and English. Particulars showing the mode of competitive test will be sent to the candidates alongwith the prescribed application form.

General

1. Application form can be had (free of cost) from the Administrative Officer, Regional Research Laboratory, Near Habibganj Naka, Hoshangabad Road, Bhopal-462 026. (M.P.) upto **12-01-1987** by sending self addressed and stamped envelope (70 paise of envelope (22 x 10 cm).
2. Application fee is required of Rs. 8/- (candidates from SC/ST communities relaxed from application fee) in the form of crossed Indian Postal Order drawn in favour of Director, Regional Research Laboratory, Bhopal. IPO in no case be enclosed with the request for application form.
3. SC/ST candidates should clearly mention in their application that they belong to SC/ST community and should enclose community certificate from the State Government authorities in the prescribed form.
4. All the posts carry usual allowances as admissible under Central Government rules.
5. Outstation candidates called for interview for the posts will be reimbursed 2nd class railway/bus fare from the actual place of commencement of journey and back by the shortest route on production of proper cash receipts.
6. Candidates in Government/Semi-Government/Autonomous organisations/Departments should route their applications through proper channel.
7. Those who have the prescribed Q and E only need apply.
8. Applications should be addressed to the Director, Regional Research Laboratory, Near Habibganj Naka, Hoshangabad Road, Bhopal - 462 026 (M.P.) and should reach him on or before **30-01-1987**. Late and incomplete applications will not be considered at any cost.
9. Canvassing in any form and/or bringing any influence, political or otherwise, will be treated as disqualification for the post.
10. Mere fulfilling the minimum prescribed qualifications and experience will not vest a right in candidates for being called for interview. Only those candidates who are likely to be suitable will be called for test/interview. No correspondence will be entertained in respect of their applications.

Interim Enquiries will not be attended to.

Q : Qualification E : Experience.

UNIVERSITY NEWS

VOL. XXV **JANUARY 5**
No. 1 **1987**
Price **Rs. 1.50**

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor :
SUTINDER SINGH

Politicising CUSAT

We had hailed the upgradation of the University of Cochin into a full fledged Cochin University of Science and Technology (CUSAT) through an Ordinance of the Kerala Government issued on 23rd February 1986 (*University News, 23 March 1986*). CUSAT, with its new dimensions, was expected to function as a Centre of Excellence providing leadership in the development of technological studies and research in the State. We had hoped that, in framing the bill of the new university, the State Govt. would adopt the good features of the organisational structures of the Anna University, national institutions like the IITs and the latest thinking of the UGC, contained in its report on the working of the central universities.

All the high hopes raised by the Ordinance have been shattered by the Cochin University of Science and Technology Bill 1986, passed by the Kerala Assembly recently which negates the salient features of the Ordinance and cuts at the very roots of the university's aspirations to blossom into a national centre of excellence. The Bill has reinducted an elected senate, whose abolition in the ordinance was particularly welcomed by the UGC, and granted representation to representatives of engineering college and polytechnic principals at various levels. The deletion of the expression 'Unitary type' radically alters the character and goals of the university and paves the way for its conversion into an affiliating university. The Bill also retains the provision of the office of the Pro-Chancellor which the UGC had sought to be withdrawn from the Ordinance as it rightly observed that the Indian Constitution does not envisage a situation when the State may not have a Governor to act as Chancellor. The Bill seems to make a conscious effort at downgrading the office of the Vice-Chancellor by taking him out of the Finance and Planning panels. Even though the Vice-Chancellor is the principal academic and executive head of the university, teachers as a class and non-teaching employees above the rank of Assistant Registrar are taken out of the purview of his disciplinary control. The Pro-Vice-Chancellor, who is supposed to function as a comrade-in-arms of the Vice-Chancellor, is sought to be raised as a parallel centre of authority by making him a member of all the selection committees for appointments to posts in the university. The Bill exposes the university to electoral politics by providing for an elected Students' Union and Staff Council. The Vice-Chancellor of CUSAT, a Science & Technology University, need not be a scientist or a technologist. Appointments to the posts of Readers & Professors could be made even without subject experts. The list of oddities is endless. The present Vice-Chancellor, Dr. K. Gopalan, has rightly tendered his resignation in sheer disgust. One wonders how the UGC will accord recognition and fund a university whose legislation has been framed in utter disregard of its guidelines.

Coordination and determination of standards in institutions of higher education is the exclusive prerogative of the Govt. of India vide item 66 of Union list in the Seventh Schedule of the Indian Constitution. Central intervention in the manner in which university automomy is sought to be undermined in the Cochin University of Science & Technology is therefore not only a moral duty but is also a constitutional obligation. This once again highlights the immediate need for the formulation of a central legislation to safeguard university autonomy as voiced by the AIU in its memorandum presented to the Prime Minister on 15th July 1986 (*University News, July 23, 1986, Editorial—AIU seeks legislation for Varsity Autonomy*).

INDIAN SCIENCE CONGRESS

Seventy-fourth session of the Indian Science Congress Association is being held at the University of Bangalore, Bangalore, from January 3-8, 1987. To commemorate the annual session of this premier science association of the country, we publish below the life-sketch of Professor (Mrs.) Archana Sharma, General President of the 74th session of the Indian Science Congress and details of the Sectional Presidents of its thirteen sections.

We are also happy to carry an illuminating article on the Indian Science Congress Association by one of its General Secretaries, Dr. (Miss) Shashi Prabha Arya. The article not only describes the composition and mode of functioning of the Indian Science Congress Association but also delineates its role in the promotion of science and scientific temper in the country.

Professor Archana Sharma, Professor of Genetics, University of Calcutta, and General President, Indian Science Congress Association has been deeply involved in the study of chromosomes for more than three decades. Her initial contributions include development of new techniques for the study of chromosome structure, widely applied throughout the world, deduction of evidence of a new concept of speciation in asexual species and mechanism of chromosomal control of differentiation. Her contributions on chromosomal study on flowering plants have led to the reorientation of their taxonomic status.

Equipped with expertise in different facets of chromosome research, she gradually shifted her principal interest to human genetics. She has built an active school on human genetics and genetic toxicology in the Centre of Advanced Study, Department of Botany, University of Calcutta, the only one of its kind in India. Her extensive population studies on genetic damages caused by environmental pollutants of different categories and the factors controlling them have clearly indicated the genetic control of the degree of susceptibility in different populations and the antagonistic and synergistic effects of the pollutants. The researches of her group on genetic polymorphism in human population *vis-a-vis* the differential susceptibility to external agents, coupled with the demonstration of antagonistic effects of pollutants are remarkably fundamental in nature with tremendous implications on mitigation of toxicological effects. A section of her group is also engaged in the study of differentiation patterns in relation to polyteny as a factor in ageing. In addition advanced banding and culture techniques have been used in the study of human chromosomes specially of mental retardants and congenitally defective individuals. This has a great value in the detection of balanced haterozygotes and the prevention of birth affected infants.

The contributions of her group on human genetics, genetic effects of environmental pollutants and genetic counselling have immense social

Prof. (Mrs.) Archana Sharma
General President

23 JAN 1987
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implications over and above their intrinsic fundamental value, which has been widely acclaimed throughout the world.

She has published more than 350 original papers in national and international journals, several books both in India and abroad, and is the joint editor of an international journal, Nucleus.

Professor (Mrs.) Archana Sharma is the recipient of Sir S.S. Bhatnagar Award (CSIR), 1st J.C. Bose Award and National Lecturership of University Grants Commission, Birbal Sahni Medal of the Indian Botanical Society, FICCI Award in Biological Sciences and Padma Bhushan by the President of India. She has represented India as official delegate of the Government of India and the Indian National Science Academy at various international conferences in USSR, USA, China, Germany, Sweden, UK, Denmark and various other countries. She is at present the General President—Indian Science Congress Association, an organization which she has been nurturing for decades in different capacities and is deeply connected with the promotion of scientific researches on the one hand and education on the other through her participation in different decision making bodies of the Government. She is a member of the University Grants Commission, Science and Engineering Research Council of the Department of Science and Technology of the Government of India, and Chairman, Indian National Committee (IUBS) of the Indian National Science Academy.

She is an outstanding personality in Indian Science and the only woman biologist of India who has attained such high level of excellence on basic researches in cytogenetics and genetic toxicology, the fundamental and utilitarian implications of which can hardly be overrated.

SECTIONAL PRESIDENTS

1. **Mathematics** : Prof. (Mrs.) Asha Rani Singal
Professor of Mathematics
Meerut University
MEERUT

2. **Statistics** : Prof. O.P. Bagai
Professor of Statistics
Panjab University
CHANDIGARH

3. **Physics** : Prof. V.S. Nanda
Professor of Physics
University of Delhi
DELHI

4. **Chemistry** : Prof. Jagdish Prasad Tandon
Professor and Chairman
Department of Chemistry
University of Rajasthan
JAIPUR

5. **Geology & Geography** : Prof. K.B. Powar
Vice-Chancellor
Shivaji University
KOLHAPUR

6. **Engineering Sciences** : Prof. S.C. Chakravartty
Professor of Physics
Regional Engineering College
DURGAPUR

7. **Anthropology & Archaeology** : Dr. V.N. Misra,
Professor of Prehistory and
Joint Director
Deccan College Research Institute
PUNE

8. **Physiology** : Prof. Gulzar Singh Chhina
Department of Physiology
All India Institute of Medical Sciences
NEW DELHI

9. **Botany** : Prof. Krishna Sahai Bilgrami
Professor and Head
Department of Botany
Bhagalpur University
BHAGALPUR

10. **Zoology** : Prof. Amar Nath Chattoraj
Professor and Head
Department of Zoology
University of Allahabad
ALLAHABAD

11. **Medical & Veterinary Sciences** : Prof. Anil Kumar Ganguly
Sir Nilratan Sircar
Professor of Physiology
University College of Medicine
Dr. B.C. Roy Postgraduate
Institute of Basic Medical Sciences
CALCUTTA

12. **Agricultural Sciences** : Prof. Suresh Kumar Sinha
Professor of Plant Physiology
Water Technology Centre
Indian Agricultural Research Institute
NEW DELHI

13. **Psychology & Educational Sciences** : Prof. Ram Murti Loomba
Professor and Head
Department of Psychology and Dean
Faculty of Social Sciences
Kashi Vidyapith
VARANASI

Indian Science Congress Association

An Overview

Shashi Prabha Arya*

The Indian Science Congress Association (ISCA) owes its origin to two British Chemists, Professor J.L. Simonsen and Professor P.S. MacMohan who were posted in India in 1910. It was at the initiative of these two scientists that the Asiatic Society of Bengal agreed to undertake the management of a Science Congress to be held annually and created conditions for the first meeting of the Congress to take place in 1914. In this first session of the Congress, one hundred and five scientists participated from various parts of India and abroad. The proceedings were held in six sections and thirtyfive papers were read. For twentyfive years the Asiatic Society of Bengal continued to look after the Association. Today it is an independent biggest scientific organisation of the country with about 10,000 members, 60% of whom are below thirty years of age. It is the only organisation in India where scientists from different disciplines and younger scientists in particular have an opportunity to interact with each other. As against six sections, the Congress now has thirteen sections covering Mathematics, Statistics, Physics, Chemistry, Geology and Geography, Botany, Zoology, Entomology and Fisheries, Anthropology and Archaeology, Medical and Veterinary Sciences, Agricutural Sciences, Physiology, Psychology and Educational Sciences, and Engineering Sciences; two Committees, one on Science and its Social Relations and the other on Science and Economic Development; and two Forums, one on Home Science and Nutrition and the other on Science Education. The annual sessions of the Indian Science Congress Association are attended by more than 4000 scientists, young and old, from all parts of the country.

The registered office of the Association is situated in Calcutta. The objects of the Association are: to advance and promote the cause of Science in India; to hold an annual Congress at a suitable place in India; to publish such proceedings, journals, transactions and other publications as may be considered desirable; to secure and manage funds and endowments for the promotion of Science; to do and perform any or all other acts, matters and things as are conducive to, or incidental to, or necessary for, the above objects. The Association consists of Members, Honorary Members, Sessional Members, Student Members, Institutional Members, Individual Donors and Institutional Donors. The membership is open to all persons with graduate or equivalent academic qualifications, interested in the advancement of science in India. The annual session of the Congress is ordinarily held from January 3 to January 7 every year. Efforts are made to hold it in different parts of the country. It is the only organisation of its kind which is inaugurated or concluded by the Prime Minister or the President of India.

The affairs of the Association are managed by an Executive Committee consisting of the President, the immediate Past President, the President-Elect, the two General Secretaries, the Treasurer and ten members elected by the General Body, and one nominee of the Department of Science and Technology, Government of India. There is a Council for considering all policy and business matters as may be referred to by the Executive Committee. The scientific deliberations in different sections during the session of the Congress are conducted by a Sectional President and a Recorder in each section.

During the annual session of the Association, delegates from similar associations all over the world participate. In fact, it was at the 1938 Silver Jubilee Session of the Congress that the participation of foreign scientists in sessions of the Indian Science Congress was initiated. This session was attended by seventy-four foreign delegates. Partly due to World War II and partly due to paucity of funds, the participation of foreign scientists was discontinued to be continued again in 1947 at the Delhi Session of the Congress of which the late Pandit Jawaharlal Nehru was the General President. Since then the participation of foreign scientists has been a regular feature of the annual sessions of the Indian Science Congress. Among others, delegates have come from American Association for the Advancement of Science, Bangladesh Association for the Advancement of Science, The Royal Nepal Academy of Science and Technology, British Association for the Advancement of Science, Sri Lanka Association for the Advancement of Science and the USSR Academy of Sciences. The academic programme of the annual session includes presentation of contributed papers, poster

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General Secretary, Indian Science Congress Association, Department of Mathematics, Maitreyi College, New Delhi.

sessions, symposia and special lectures in all the sections, committees and Forums and popular and endowment lectures.

Since 1976 one of the major activities at the annual sessions has been to concentrate on a focal theme of national relevance. The address of the General President is devoted to the focal theme. Symposia on the focal theme are organised in all the thirteen sections, committees and forums. The first focal theme for the 1976 session held at Andhra University as chosen by the then General President was "Science and Integrated Rural Development". It had its impact in policy making for the country in as much as it formed the basis for the next five-year plan. In subsequent years the focal themes were "Survey, Conservation and Utilisation of Resources", "Science Education and Rural Development", "Science and Technology in India during the coming decade(s)", "Energy Strategies for India", "Impact of the Development of Science and Technology on Environment", "Basic Research as an Integral Component of a Self-reliant base of Science and Technology", "Man and the Ocean—Resource and Development", "Quality Science in India—Ends and Means", "High Altitude Studies", and "Role of Science and Technology in Environmental Management". The focal theme for the 1987 Session at Bangalore will be "Resources and Human Well-being—Inputs from Science and Technology".

The Department of Science and Technology, Government of India has set up a permanent task force consisting of representatives of ISCA and the heads of various agencies and voluntary organisations for ensuring implementation of the recommendations of the focal theme. In this way the ISCA, the premier association of scientists of the country, promotes the development of science and plays its role in giving a direction to the national science policy.

One of the major thrusts of the ISCA, to spot out and nurture the younger scientists, is the ISCA Young Scientists Programme. This programme was introduced for the benefit of young scientists from the 58th Session of the Science Congress held at Varanasi in January 1981. The programme enables young scientists to present their research work and provides them opportunities to exchange ideas on specific scientific problems with other scientists working in the same area. Upto 20 young scientists are selected for the Young Scientists Award at each session. Each award carries a Certificate of Merit and a cash award of Rs. 500. A further amount of Rs. 2500 is given to the awardees as a research grant.

A few years ago Professor Hira Lal Chakravarty and Smt. Toru Chakravarty donated a sum of Rs. one lakh for instituting two annual awards of Rs. 4000 each, called the Professor Hira Lal Chakravarty Awards. These awards are to be given to talented young scientists doing significant researches in Botany within the country. The two awards are given annually and carry a sum of Rs. 4000 each and a certificate. The awards are based on original published work carried out in India within three years prior to the award. The first award was given at the 72nd Session of the ISCA held in January, 1984.

The two endowment lectures—G.P. Chatterjee Award Lecture and B.C. Guha Memorial Lecture—are held every year at the time of the annual session of the ISCA. The first one of these—G.P. Chatterjee award lecture—was instituted through a donation of Rs. 1.5 lakh by the late Professor G.P. Chatterjee and Smt. Suniti Chatterjee and carries an honorarium of Rs. 10,000. The awardee delivers a lecture at the annual session of the Science Congress, on some aspect of Science and Man. The first lecture was delivered by Professor D.S. Kothari on "Electron—Truth and Man" in 1981, subsequent lectures were delivered by Dr. B.P. Pal on "Science and Human Well-being" in 1982, Professor A.K. Sharma on "Cultural Evolution and Environment" in 1983, Professor M.G.K. Menon on "Science and Life" in 1984, Professor A.R. Kidwai on "Science and Scientific Temper" in 1985, and Professor V. Ramalingaswami on "Perspective of Urban Health in India" in 1986. At the 1987 Bangalore Session of the ISCA, G.P. Chatterjee award lecture is going to be delivered by Professor Yashpal, Chairman, University Grants Commission on "Science, Joy and Freedom."

The B.C. Guha Memorial Lecture was instituted in 1965 from a donation of Rs. 10,000 from Dr. (Mrs.) Phulrenu Guha. The Lecture carries a token honorarium of Rs. 500 and should be delivered on a topic having some relevance to the science of nutrition, in particular vitamins which was the major field of research of the late Professor B.C. Guha. During the past six years the B.C. Guha Memorial Lecture has been delivered by Dr. M.G. Deo on "ICRC Anti-Leprosy Vaccine—Hope for Mankind" in 1981, Dr. H.K. Jain on "India's Evolving Agriculture—Genetic Reconstruction and Phenotypic Gap" in 1982, Dr. S. Sriramachari on "Crystalloid-Colloid Interaction with Particular Reference to the Fluoride ion and its Possible Implications to Fluorosis" in 1983, Prof. Sachchidananda Banerjee on "Vitamin C—Nurtition and Its Relation to Diabetes" in 1984, Dr. D.S. Bhakuni on "Nutrition in Health and Disease" in 1985 and Professor P.N. Tandon on "Nutrition and Human Brain" in 1986. At the Bangalore Session the 24th B.C. Guha Memorial Lecture will be delivered by Dr. S.L. Mehta on "Scientific Relevance of Protein—Quality Improvement in Grains."

Apart from holding the annual sessions, the Science Congress Association has been organising several other activities throughout the year such as organisation of Popular Science Lectures, and School Science Teachers Programme supported by the Department of Environment, Government of India. The Association has 17 regional centres—one each at Allahabad, Bangalore, Baroda, Bhubaneswar/Cuttack; Bombay, Calcutta, Chandigarh, Delhi, Gauhati, Hyderabad, Lucknow, Meerut, Nagpur, Panaji (Goa), Pune, Ranchi and Tiruchirapalli—where lectures by eminent scientists on topics of general scientific interest are delivered. These lectures will go a long way in popularisation of science.

The ISCA has also undertaken a programme to involve High School and Higher Secondary School Science Teachers, especially in those of rural areas, in the national effort related to improvement of environment. The main thrust of the programme is to encourage interested teachers and school students to undertake projects on such areas as Afforestation, Drinking Water, Communicable Diseases, Conservation of Water for Agricultural Use, Soil Conservation related to Agricultural Lands; Pests and Pesticide Problems, Domestic Drainage Problem in Rural Sectors, Agricultural Waste Disposal and Management; Industrial Waste, Weed Control (both land and water), Pollution Problems in Industrial Belt, Air Pollution, Plant and Allergy, Effect of Refinery Effluent and Gas on Environment etc. It is proposed to publish the data and relevant outputs of completed projects.

The Proceedings of the Annual Sessions of the Congress are published in one volume in four separate parts. Part I contains list of officers, Proceedings of the Inaugural meeting of the Session and all Official Matters; Part II consists of all Presidential addresses; Part III contains abstracts of papers accepted for presentation at the session; and Part IV consists of discussions held at the Session, late abstracts, list of members of the Association and the index. The Association also publishes a bi-monthly Science-Journal—'Everyman's Science'. In 1963, on the occasion of its Golden Jubilee Session, 'A short History of the Indian Science Congress Association (with life sketches of General Presidents)' was published. Also published on this occasion was 'Fifty years of Science in India.' This is in the form of thirteen Sectional Reviews. Again, at the time of its Diamond Jubilee Session in 1973, 'A decade (1963-72) of the Indian Science Congress Association (with life sketches of General Presidents)' was published and likewise 'A decade (1963-72) of Science in India' was published comprising thirteen sectional reviews. Besides these, other major publications of the Association include the focal-theme publications based on each year's focal theme and a collection of the speeches delivered by late Shrimati Indira Gandhi at the inaugural session of ISCA under the title 'Indira Gandhi on Science, Technology and Self-reliance'. The Association will complete seventy-five years of its existence in 1988 and will then celebrate its Platinum Jubilee. For this a Committee has been set up to formulate and to organise programmes. A special brochure 'The Indian Science Congress Association—Growth and activities' has been published so as to highlight the programmes of the Association over the years. A number of special publications are planned to mark the platinum jubilee celebrations. These include "History of the Indian Science Congress Association : A Profile of Seventy-five Years", "Scientific Research in India : Retrospect and Prospect".

The Association has a library housed at the Headquarters of ISCA in Calcutta. Besides standard journals, the library is trying to enrich its collection with publications such as proceedings of conferences, symposia, project reports, annual reports, etc.

This year's Science Congress Session will be preceded by a three-day Joint Scientific Seminar sponsored by the ISCA and the American Association for Advancement of Science from December 30, 1986 to January 1, 1987. The Seminar will devote itself to four major themes, namely (i) Beyond the Green Revolution, (ii) Soil and Water Degradation Crisis, (iii) Bio-technology in and for India, and (iv) Application of Computer and Communication Technologies for Indian Education. The American delegation to this seminar is being led by Dr. Lawrence Bogorad, President of the American Association for the Advancement of Science. The theme of the seminar is directly related to the focal theme of this year's Science Congress.

The Indian Science Congress Association, through its multi-disciplinary activities, has contributed tremendously to the progress of science and technology. It has played an important role in creating a scientific temper in the country and in providing a better understanding of the significance of the application of science in economic and social development of the country. □

Constraints on University Administration

Md. Mazhar Hussain*

The phrase 'University administration' can be interpreted in more senses than one. In one sense it is governance of Universities—the functions and powers of the university authorities, the balance between the faculty and the lay element on the authorities, their functioning according to the Acts, Statutes and Ordinances of the University.

Management of Universities is a very complex affair. Every major University is faced with the problems of academic administration in a big way. The internal management of universities has these days been considerably deteriorated due to variety of reasons, the chief among them being external influence on the management. The Vice-Chancellor's is one of the toughest administrative jobs in the country. The stress and strains which a Vice-Chancellor is subjected to has very few parallels.

The task of higher education administrators is to identify the segments in the outside environment that are relevant to the working of the university administrators. Governor of the State being the Chancellor of Universities, the State Government, the University Grants Commission, the political and social pressures, students', teachers' and employees' associations, etc. have been identified by the university administrators as environmental segments and these segments act as constraints on university administration.

The Chancellor

In Indian universities, Governors are designated as Chancellors of Universities. Vice-Chancellors are appointed by the Chancellor. Naturally, the Vice-Chancellors have to oblige the Chancellor by carrying out his instructions. In this way, the Chancellor becomes a constraint on the university administration when he imposes conditions. In this regard, I would like to refer a news-item published in a national daily in March last. The Maharashtra Governor had resigned from the office after severe criticism by two prestigious Universities of Bombay and Pune, the State Legislature and the Press, for his alleged interference in the functioning of the autonomous academic institutions. The Vice-Chancellor of Bombay University had earlier tendered his resignation from his post alleging that the Governor had tried to influence the university administration. The Bombay University Senate had passed a censure resolution by 58 votes to one, strongly condemning the Chancellor's interference and expressing its concern over the erosion of the Universities' autonomy and hailing the resignation of the Vice-Chancellor. The Chancellor was even booed at the Convocation of the University and was obstructed from entering the convocation hall by a section of students.

The State Government

Most of the Universities in India are working under overall supervision and control of the State Governments even in academic matters. The controls are in the matters of appointment of Vice-Chancellors, Pro-Vice-Chancellors, Financial Advisors and Registrars; creation of and appointment on teaching and non-teaching posts; increase of pay and allowances; development schemes; budgeting, admission of teaching institutions; holding of examinations; making Statutes, rules and regulations, etc.

The question of autonomy is not generally approached with consistency. The State Governments are reluctant to give autonomy to the Universities. In fact, all over India, Govt. control over universities has generally been showing an expanding trend. The universities want quite justifiably that they should be free in the matter of their academic and administrative work. The government, as the financing authority, has of course to keep control over the university budgets, but it becomes a direct attack on autonomy if a university has to seek the permission of the government through a time-consuming and frustrating process—everytime it decides to incur some other new expenditure, even when the additional expenditure is expected to be met from the approved budget. And it becomes really unfortunate when unseemly tussles for administrative power take precedence over academic issues. The entire process of decision-making and the manner and extent of govt. involvement in the university affairs may throw up several problems affecting the Government-University relationships. The major problem for administration in universities is the relation between the State Government and the Universities. At a conference of Vice-Chancellors held at New Delhi, the Vice-Chancellors felt : ". . . . the normal rules of Government are unsuitable for the efficient management of universities." At a business session at the seminar on New Education Policy held in Patna University in September last, most of the speakers felt: "The main reason for the deterioration in higher education has been because of its being under State Government control. The political

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**Patna University, Patna.*

and administrative ability in the State directly affect the normal functioning of the universities. Further, the resource mobilization always becomes a constraint on proper development of institutions of higher learning." All the speakers were unanimous on the point that every effort ought to be made to ensure the complete autonomy of the university. It was widely held that if the university was to really function effectively and efficiently, it must be endowed with financial, administrative and academic autonomy. The government should allocate funds after scrutiny and then let the university spend the money in the manner which it thinks best. It was emphasised at the seminar that autonomy did not mean the democratization of the various university bodies only, but the freedom to take decisions collectively without any external interference. Moreover, autonomy also includes the right to implement the decisions taken.

The Chief Minister of Bihar, while inaugurating the first State-level conference of the University Principals organised by the Magadh University Principals' Association at Patna on February 23, 1986, also admitted that after 1974, the universities were virtually subordinated to the Education Department. The powers of the Syndicates and Senates were crippled, financial powers of the universities were scrapped and the Syndicates reduced to non-entities. The Chief Minister also said that the Government proposed to make the universities all powerful so that they did not look to the Government for managing their day-to-day affairs. Addressing the conference, the Chairman of the Bihar Vidhan Parishad also admitted severe constraints on university administration. He held that there had been growing onslaughts on the university autonomy and the universities in Bihar had no administrative, financial or academic autonomy and they had to function at the whims of the government.

The Prime Minister, while inaugurating the national seminar on implementation strategies of national policy on education on June 26, 1986 had also hoped that the new policy would give greater autonomy to institutions and offer much less scope for bureaucratisation.

"Hands off the Varsites" and "Restore Autonomy" have been the demand of the teachers and others since long. This constraint is an impediment in implementing successfully any innovative programme or innovation. Interference of the government and the bureaucrats in the normal functioning of the universities should, therefore, be stopped so that the sanctity of the teaching profession may be restored. The cultivation of moral values at different educational levels can only be possible if they are seen to operate free of constraints.

The University Grants Commission

One of the main sources of income of most of the universities is the recurring and non-recurring grants by the UGC. But the creation of the UGC, has brought the issue of "academic freedom" of the universities to the fore. The Commission's responsibility is to coordinate and maintain standards of education, examination and research in universities—but through their Acts. The universities believe that these are exclusively the responsibilities of the universities. It has to be clarified that the Commission's statutory powers in this respect are overriding. Due to lack of coordination between the UGC, and the state governments, the universities are unable to take advantage of the UGCs financial assistance for want of a similar matching contribution from the state government. The relationship of the universities with the UGC should, therefore find a suitable mention in the Acts of the universities.

Political and Social Pressures

Academic life in our country has been politicised to a very large extent. Political pressures are exerted by the elected representatives of the people in interest groups and those individuals who are influential in the society. This is in terms of either trying to secure admissions or getting their favourites appointed in the universities or representing the grievances of the various sub-sections. These factors act as constraints.

In the matter of appointment of Vice-Chancellors, the Ministry claims absolute powers and thinks itself to be authorised to disregard the recommendations of the relevant university bodies. Chief Ministers of States think Governors being constitutional head and as they are chancellors of universities, they must abide by the advice of the Chief Ministers as Chancellors.

According to the Report of a seminar conducted by Bhagalpur University on the New Education Policy: "Vice-Chancellor in Bihar is a nominee of the Chief Minister or the Education Minister or some other powerful Minister in the Cabinet. Ironically such a hand-picked Vice-Chancellor is more often than not ill-treated and humiliated by his mentor." The report further states that no Vice-Chancellor is able to complete his term and sadly enough "politicians and teachers gloat over the misfortune suffered by a Vice-Chancellor". The turmoil in West Bengal universities is the recent example of political tussle in the matter of appointment of Vice-Chancellors.

The Vice-Chancellors felt that their appointment should not be politicised and the government should create conditions in which the dignity of the head of a university is upheld and he is allowed to function effectively. The Vice-Chancellors also felt that politicisation of the universities has damaged the academic atmosphere and therefore strongly supported the recommendations of the Committee on Central Universities on the depoliticisation of the universities whose executive bodies should be more compact and functional.

The most important problem for the Vice-Chancellor nowadays is to find out how to meet the increasing pressure for admissions, especially on quota basis. Everyday there is a crowd of people in the university office with letters of ministers, legislators, and V.I.Ps in their hands recommending admission of their wards, who failed to find seats on merit, in spite of the fact that a Vice-Chancellor is bound to function according to the Act, statutes, rules, regulations, ordinances, etc. A Vice-Chancellor can oblige them only by corroding rules, regulations and ordinances. But it becomes a problem for those Vice-Chancellors who function strictly under the provisions of the rules and regulations and who do not take very kindly to flatterers and sycophants who resort to tendering uncalled for advice for opportunistic and ulterior motives.

The document of the "New Education Policy" speaks of the necessity of imparting political education in the universities. But in various news and views published in the dailies, it has been wrongly interpreted as "politicisation of education". The aim of political education is to prepare fiture citizens for participation in the process of democracy. It does no mean that the politics should be applied in the universities making it a constraint on their administration. Rather the policy stressed on depoliticisation, which means that the teachers' democratic rights are not threatened.

The report of the seminar held at Patna University, and referred to above, said: "It was unanimously felt that the teacher politicians and bureaucrats are responsible to a great extent, for the present malady of education, bringing down the standard of teaching and the management of the universities by political interference. In order to improve the standard of education and working of the universities, politicians in general and those enjoying power in particular, should keep their hands off education..... The seminar suggests that a national consensus involving all political organisations be arrived at, to declare education a non-political sector, in order to restore the autonomy of the universities."

Several Vice-Chancellors, in interviews with UNI in August, 1985, expressed the view that politicians should have no link with universities and should allow them to function as temples of learning.

In an editorial of a Patna based daily dated 12-4-86, it was viewed: "If only Ministers and other politicians stop meddling in the affairs of universities, more than half of the ills plaguing higher education in Bihar will take no time to be cured. . . . There is hardly any university, any college for that matter, in Bihar, which is not in the pocket of a politician."

Educational set-up cannot be cleaned as long as the political interference continues. We must, therefore, do everything that is necessary to rescue teaching from the morass into which it has fallen because of atrophying of academic and moral values brought about by politics.

Students', Teachers' and Employees' Unions

Associations of the non-teaching staff and the students and the teachers' Unions are also considered as external pressures and these also serve as constraints. The turmoil in Calcutta University is the latest example of this constraint. The members of the students' union frequently and forcibly compel the university authorities to get their favourites' work done, whether legal or illegal.

Still there are some other constraints on the university administration. Some of the management problems have arisen from the sheer growth of numbers. We have to-day a total enrolment of over 32 lakhs in our institutions of higher education. This enrolment is likely to cross six million mark by the year 2000 A.D. even at the average rate of growth of the last decade. The Conference of the Vice-Chancellors referred to earlier was of the view that some bold steps were called for by the UGC and the Central Government to formulate a national admission policy for restricting admissions into the university system, as otherwise in the present set-up of open access to all who pass the minimum qualifying exam. in the general education sector, most of the universities will not be able to withstand the pressure of 'increasing numbers', due to lack of infrastructure, resulting in further deterioration of standards.

Mr. Pranab Mukherjee, the then Union Finance Minister, while addressing the convocation of Patna University in May, 1984 said; "The swelling tide of students thus puts serious constraints on university education for the simple reason that the vast multiple of the entrants have neither any interest in higher learning nor the necessary equipment to acquire it. "Such kind of pressure and a whole lot of matters of discipline were hardly known earlier. Even significant educational reform creates more problems than it solves because the pressures are difficult to withstand—providing a large variety of diploma and certificate courses has often been misused by groups of students, who just want to prolong their stay in the hostels or the university to either live cheaply or earn leadership and make mischief. □

G.B. Pant University of Agriculture & Technology

PANTNAGAR-263 145

ADMISSION NOTICE

A competitive entrance examination for selection of candidates for admission to the first year of the following academic programmes will be held on **Sunday the 3rd May, 1987** from 10 A.M. at Agra, Allahabad, Delhi, Hyderabad, Lucknow, Roorkee, Varanasi, and Pantnagar Centres.

A—Bachelor's Degree Programme	Minimum Eligibility Qualifications	Age
1. B.Sc. Ag. & A.H.	Intermediate Agriculture/Science (Biology or Maths) from U.P. Board Allahabad, or equivalent examination.	22 years on 30-11-87 (3 years relaxation for SC/ST/BC candidates)
2. B.Sc. (Forestry)		
3. Bachelor of Fisheries Sc.		
4. B.V.Sc. & A.H.	Intermediate Agriculture/Science with Biology from U.P. Board, or equivalent examination.	
5. B.Sc. Home Science (for girls)	Intermediate Agriculture/Science (Biology or Maths) from U.P. Board Allahabad, or equivalent examination.	
6. Diploma in Home Science (for girls)	High School in Science from U.P. Board, or equivalent examination.	

Candidates appearing in the above Board's examination in 1987 are also eligible to appear in the Entrance Examination provided their results are positively declared by 5th July 1987 otherwise they will stand disqualified.

B—Master's Programme in 44 Majors	Minimum Eligibility Qualifications
in the areas of: 1. Agriculture 2. Veterinary Sciences 3. Engineering & Technology 4. Home Science 5. Basic Sciences, and 6. Food Science	Bachelor's degree in Agriculture/Veterinary Sciences/Engineering & Technology/Home Science/ Basic Sciences, as the case may be, in First Division or an equivalent OGPA from a recognized University with not more than one third division at High School or Inter level.

C Ph.D. Programmes in 29 Majors	Minimum Eligibility Qualifications
in the areas of: 1. Agricultural Sciences 2. Veterinary Sciences 3. Engineering & Technology 4. Food Sciences, and 5. Basic Sciences	Master's degree in Agriculture/Vety. Sciences/Engineering & Technology/Food Science/ Basic Sciences, as the case may be, in First Division, or an OGPA of 4.00 out of 5.00 from a recognized University with at least second class in Bachelor's degree and not more than one third division at High School or Inter level.

For full details, the Information Brochure and application form (prescribed separately for Undergraduate, Master's and Ph.D programmes) can be obtained by sending an 'ACCOUNT PAYEE' Bank Draft for Rs. 10/- on State Bank of India, Pantnagar Branch (Code 1133) or United Commercial Bank, Pantnagar, with a self-addressed envelope of 10″ × 7″ size bearing postage stamps of Rs. 4.00 by unregistered parcel, or may be obtained on payment in cash at the Counters set up in the Admission Cell at Pantnagar, or from the Office of Dy. Director (Adm.) GBPUA&T Camp Office, 8 Cooper Road, Lucknow.

LAST DATE FOR RECEIPT OF APPLICATIONS: **20th March, 1987** with prescribed fee of Rs. 50/-. **From 21st March to April 4, 1987** with an additional late fee of Rs. 50/- for Pantnagar Centre only.

O.S. Misra
REGISTRAR

Agenda for Technical Education

Hon'ble Shri P.V. Narasimha Rao, Union Minister of Human Resource Development delivered the Convocation Address at the annual convocation of the Indian Institute of Technology, Delhi on 29 December 1986. We are pleased to carry excerpts of this very illuminating address.

Convocation

We are presently engaged in an intensive exercise to implement the new National Policy on Education in letter and spirit. It is for this reason that I value this occasion as particularly timely. I find this place and gathering most appropriate to articulate in layman's terms to the expert on a matter in which neither can wish the other away.

We stand today at the cross roads of human destiny where so much is being achieved on the material and intellectual plane. Knowledge and information are growing at an exponential pace. There seems to be nothing which is beyond man's will to innovate Great rivers have been harnessed, the galaxies have been exposed in the mirrors of telescopes, the frontiers of space have crumbled, knowledge itself is being packed in miniscule electronic chips. Specialisation and pursuit of excellence have become the order of the day. One is overwhelmed by the power of knowledge that surrounds us. However, in our endeavour to climb the ladder of scientific truth, it is the human perspective which is sometimes lost. Science and technology are not an end in themselves, but tools through which life in all its aspects has to be enriched. This is where the scientist or the technologist is confronted with a phenomenon which transcends pure research of the laboratory or the frenzied activity of a factory. Science cannot exist by itself. The telescope or the microscope are merely extensions of our senses. They help us to observe physical or biochemical phenomena more minutely and lead to greater understanding — more precisely, to that part of understanding which emanates from observation. This understanding does not amount to total knowledge of the phenomena, but constitutes an important part thereof. Now the power of this partial knowledge can be both destructive or creative, while the scientific method helps in achieving both efficiently and effectively. Between the two, however, the choice is entirely ours; science is quite neutral there.

Quite a few thinking individuals are asking the question: If the choice between creation and destruction is entirely ours, what shall it be? What should it be? It does sound rather self-evident apparently. But is this question unrealistic? Has it been answered? We only know that every living being tends to cling to life. But that does not necessarily amount to a value judgement on life itself as something worth clinging to. If a large number of persons want to smoke or drink, it does not follow that smoking and drinking are good. Desire does not *ipso facto* imply desirability of what is desired. Making life worthwhile is, in essence, the role of all human endeavour, including technology. At least, it ought to be so.

When we say that technology should be oriented to our needs, we should also ask ourselves what our needs should be oriented to. The fact of the matter is that both are bound to change with mutual interaction. But what would be desirable is that the change comes as a co-ordinated package whose contents are clearly spelt out. These contents could be just what we normally understand as need—physical, social, economic, psychological and spiritual. But the first important question that arises is—whose need? Second, a very critical question abut each of these needs—whether there is a need for that need. This is a very basic aspect and cannot be brushed aside. Third, to what extent we think that a given need deserves priority, compared to other competing needs? Fourth, what is the technology which we can afford, in the sense that it enables the corresponding need of the greatest possible number to be fulfilled within the means available? I am reasonably certain that unless a nation finds the answers to these questions, its technology policy cannot be accurately spelt out. The framework gets blurred all the time and we are always chasing phantasies.

I am trying to get down to basics—what may be called layman's basics, since I cannot speak with authority on highbrow aspects of technology and also happen to hold the oft-repeated yet not always realised view that technology ought to be man's slave and not his master. The first question I have raised about needs is, whose needs? It contains within itself a wide range of considerations impinging on ecology, nature's justice and the eternal race between need and greed. This is in the realm of man vis-a-vis all that is outside man. Whatever man has thought about his own absolute primacy through time, it appears clear that he can exist only if he is willing to co-exist with many others besides himself, animate and inanimate. Any effort to over-rate his own primacy to the extent of destroying everything else in nature has now been established as being suicidal to man himself. Inevitably, therefore, for man's survival, or co-survival, as described above, the parameters of technology are thus determined to a certain extent. In other words, technology shall be essentially creative, not destructive, except to the extent destruction itself is needed for over-all survival.

This brings us to the next question, viz., the need for a given need. It is not open to any one species, human or non-human, to imagine a need arbitrarily and proceed to fulfil it, unmindful of the needs of others. Need, therefore, becomes a matter of rational determination and not of any flight of fancy. Technology, therefore, at once comes within the ambit of rationality. There can be no such thing as technology for technology's sake.

The question of prioritisation among needs *inter se* is eternal. Even in the context of co-survival, priority becomes crucial within what should survive. Obviously, this is not a choice between survival and extinction, but between survival and survival. Form this standpoint, it is much more complex. In a broad sense, it could be observed that priority should be sequential as well as consequential. The earlier should lead to the later rather than each standing independent of the other. This alone could ensure that the future is constantly built on the achievements of the present and there is no wastage in the process. This is particularly important where resources are limited.

The four main parameters of technology, therefore, could be summed up as follows:

(a) Technology should be need-based, the needs being those of the over-all creation, human and non-human, with no exclusive and excessive primacy being attached to any one entity;

(b) Technology should eschew the tendency to serve the so-called needs that are arbitrarily or artificially created or attributed. For instance, in a civilised society there ought to be no need of war for any purpose. Therefore, technology to further the aims and processes of war, of any kind, nuclear or non-nuclear, should be suppressed. Scientists should be able to analyse the so-called dual purpose or multipurpose technology and sift the beneficial from the fatal. Wherever there is doubt, the normal rule should be to reject that technology and do without it;

(c) Technology should clearly lay down its target priorities based on the common good. Taking humanity as a whole, the basic needs, viz. food, clothing, shelter, health, education, culture could perhaps be acceptable on all hands. In my view, culture is undoubtedly a basic need; in fact, it distinguishes man from other species. Even this statement may not be hundred per cent correct, since each species in creation is known to have its own way of life, in other words, its own culture; and

(d) Technology should be equity-based. Any technology which heightens disparities, tensions and antagnoisms, between man and man and between human and non-human entities in creation, should be rejected as inimical to the survival of creation and therefore counter-productive and self-defeating. The outcome of any technology should be harmony and humanism. If man is the master of technology, he should effectively orient it on these lines.

I do not presume to claim my finality or infallibility to these parameters, but I do submit that they are useful and valid, at least illustratively. While the global aspects of war and peace are not entirely within our competence, the domestic parameters could certainly be considered on merit. What applies to technology applies equally to technical education. It is here that the I.I.Ts, as the trail-blazers in technical education, need to look within and assess their utility, in addition to excellence; in the ultimate analysis. I do not find any contradiction between the two.

Now that we have a clear-cut policy approved by the nation, we have to plan the educational process, particularly on the technical side, in such a way that the needs of society are assessed, systems and linkages are provided and the calibre of technical education is oriented to the specifications I have attempted to describe. All these aspects need to be kept in view while the National Policy on Education is translated in specific programmes of action.

Coming from the general to the specific there are some areas of concern especially in the field of higher learning and technical education which must be spelt more specifically:

Technology and Manpower Forecasting

The ever accelerating pace of

change of technologies poses a challenge to the system of technical education.

A large number of technological developments are being attempted all over the world. Some of these turn out to have major potential for change and development (for example, computers). Some more time could be needed to express the emerging potential through specific products or processes or improving productivity by adoption of new technology. Once the decision to use a particular technology is made, based on the overall considerations indicated above, the educational planner would then work out the skill development task and would organise an educational system for generating this skill. This would involve preparing teachers, developing a curricular framework, organising instruction, developing learning resource material, organising examination and certification systems, and finally establishing linkages with the user system.

All this takes time. Finally the duration of the education programme determines the gap between admitting students to a particular educational programme and the outturn of requisite manpower. The total time taken in this process can easily be 5-10 years depending on specific situations. In this period, however, technology does not remain static. It has either moved on to another level or evolved into something altogether different. The education system, therefore, ends up chasing some past technology, which often appears to be obsolescent in the glamour of what is termed latest at a given time. This is perhaps the most serious technological problem especially, faced by developing countries. To date, I am not sure that we are ready with a final solution. Indeed I am not quite clear about the exact point where a given technology could be called obsolescent and deserves to be changed lock, stock and barrel, despite all the waste and the effort of readjustment and re-orientation involved in adopting a totally new technology. All I can think of as a layman is that the solution to obsolescence could lie only in the direction of self-reliance in technological innovation and development, not necessarily behind or ahead of developed countries, but essentially different, so as to suit our own situations of need and capacity. With this as the basis, strong and reliable systems for technology and manpower forecasting should be set up and the organisational structure of the educational set up made sufficiently flexible so as to reduce reaction time, adapt to our imperatives and to develop a reasonable resource between the articulation and fulfilment of skill needs through the educational system. I would like to specially emphasize, at this point, that of all the skills the educational system seeks to give to young students and trainees, the skill of upgradation is extremely important, perhaps as important as the skill of innovation.

With the large intellectual capital available within the I.I.Ts. with their scientists, engineers, and technologists working at the frontiers of knowledge in their respective disciplines, it is only natural to expect that the task of technology forecasting will be pursued earnestly by the I.I.Ts., and other premier institutions of technology. What is important however is that this is not a sporadic *ad hoc* activity but is systematically pursued through suitable organisation and vigorous, indigenous and continuous effort. Another extremely important point to remember is that this forecasting is not just an exercise in airthmetical computing. It has to be comprehensive, multidisciplinary not only as between technical disciplines but fully interacting with humanities so that the end result is holistic. We are not aiming at creating an expert simpliciter; we want to create a better expertise. To me as a layman, the difference is crystal clear. The Prime Minister called this activity Human Resource Development. We are trying our best, ever since, to spell out the concept in clear-cut terms, to enable it to survive through an impenetrable wall of highbrow cynicism and finally, to save it from the ever-present and real danger of sloganisation and banalisation.

Effort in technology forecasting and manpower forecasting should not be viewed by the institutions as external to their role or as a marginal role. It is indeed very central to maintaining the institution's pre-eminence and to remaining in the fore-front. This would bring about a futuristic orientation and keep institutions dynamic and relevant. Let us hope that I.I.T. Delhi would play its due role in this task.

Perspective of Change

Since the dawn of civilization the world has witnessed three major phases of change. The first was brought about by the agricultural revolution and dominated until the 18th century. Since then the industrial revolution picked up and dominated the advanced countries. Very recently these countries in particular started experiencing the third major phase, the post-industrial phase which is being shaped by new knowledge generated in electronics, space sciences, ocean sciences, microbiology, ecology and behavioural and social sciences.

The future would have been easy to see if only one of these were to dominate. But when the society is struck by two or more waves of change, great upheavals occur. India today is experiencing the impact of all the three waves, i.e. agricultural, industrial as well as the post-industrial revolution. Each makes a different impact on the techno-social and information spheres and generates different and often conflicting demands. It is possible to view this complexity and difficulty of task with dismay but it is also possible to perceive in all this, enormous opportunities for change and development, to skip intermediate stages and leapfrog directly to the desired future. Much would depend on the ability of our educational system to understand the nature and mechanisms of change and to generate the ability to manage change through creating a manpower base capable of imaginative and futuristic thinking, system-planning, system development and acting as change agents. These skills are required in addition to skills in specific technologies. The technical education system generally and the I.I.Ts in particular as its leading edge, should therefore take on these challenges.

At this point, I would like to indicate the scenario that is emerging today. Rural areas are marked by the dominance of agriculture with small industries and handicrafts producing goods and services for a limitted number of consumers. The rural scene is, however, beginning to feel the impact of industrial technology and changing its social pattern. For example, the introduction of tractors, electricity, chemical fertilisers and changed methods of farming have subjected the agricultural system to mass production and mass distribution. This has changed the pattern of land holdings, concentrated economic power in a few hands and rendered a large number into landless labourers. In the manufacturing sector also machines have made locally available skills in handicrafts obsolete, again rendering a large number of people jobless. This has caused migration of rural folk into the urban areas in search of jobs. They need new skills which will fit them into the industrial system of production and distribution. In the urban areas too, the production system is being managed by small, medium and large industrial organisations each using its intermediate and high technologies. At present, the system of technical education is designed primarily for the large organised sectors. There is little which caters to the technological and manpower needs of the unorganised, small and medium manufacturing units. This is why the new National Policy on Education states that "the infrastructure and service sectors as well as the unorganised rural sector also need a greater induction of improved technologies and a supply of technical and managerial manpower".

The technical education system has the responsibility to look after this need. There is a widespread impression that these are simple tasks, or that simpler or inferior technologies are needed for these other sectors, and are not the concern of premier institutions of technology which work in frontier sophisticated areas. It is important to dispel this notion and remind ourselves of the many instances in which the appropriate technologies for these sectors have to be, if anything made sophisticated if the intention is to make them viable. They are also much more difficult and challenging for the simple reason that the known Meccas of sophistication have not tackled such problems of small magnitude coupled with great complexity. Therefore, there appears to be no use for us and other developing countries to look up to them for solving our problems. Modern communication technologies including satellite communication for instance, have been used for generating literacy and functional skills. We have to pursue this line of action and evaluate the results regularly and meaningfully. Furthermore, the task of serving unorganised and rural sectors involves creating organisations, systems, technologies and skills at various levels, coping with a variety of attitudes and capabilities. Either we ourselves can do this, or we cannot. No one else will take the trouble of bailing us out, since no high profits seem to be involved. This task is both large and complex and there is a role for every level of institution in this from the I.I.Ts to the I.T.Is.

Changing technologies, emergence of new ones

High energy input technologies based on non-renewable resources, mass production and consumption systems are, however, playing havoc with the environment. Forests are being rapidly denuded and raw materials are getting depleted, the store of fossil oils is expected to last just another 50 years. Given the pollution levels, indefinite continuation of industrial civilisation does not seem to be possible and environmental constraints are going to limit our technological options. We seem to be approaching the post-industrial era whose salient factors are:

(i) change in the nature of energy base;
(ii) emergence of new sciences, namely, quantum electronics, information theory, molecular biology, ecology space sciences, behavioural and social sciences;
(iii) emergence of related industries, namely, electronics and computer industry, space industry, ocean industry and gene industry;
(iv) demanification and diversification of information systems.

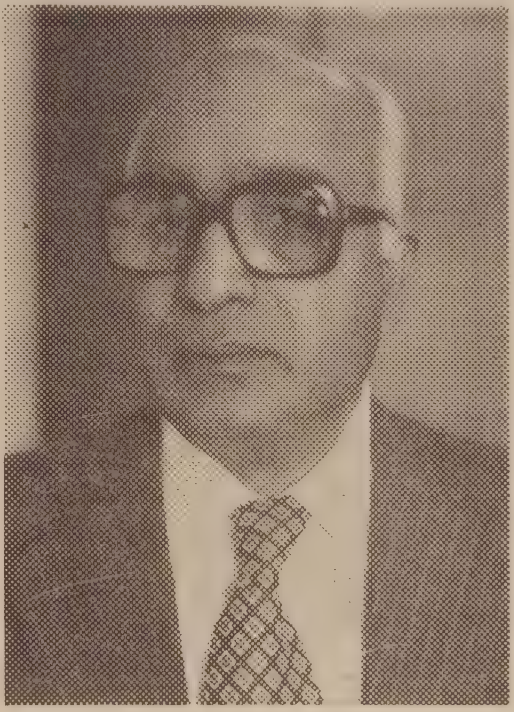
In view of the depletion of fossil oils in the near future we have to search for renewable sources of energy e.g. sun, tide and wind. Even energy from coal and nuclear fusion is not going to solve all our problems. R and D effort would have to be focussed on non-conventional energy sources; photovoltaic conversion of solar energy, solar thermal systems for process heat and power generation; low cost high efficiency digesters for biogas generation, development of species for biomass production in waste lands; integrated rural energy systems using solar energy, wind energy and biomass, techniques for generation, storage and utilisation of hydrogen etc.

I could go on cataloguing these areas, but by doing so I would only be repeating to you what I learnt from you. The only layman's point that strikes me as noteworthy is that in these new areas peculiar to our conditions, no one else has already gained any great head start over us. We can also deliver, if we have the will and penchant for indigenous effort. Old fashioned persons like myself can only hope that you, my young friends will succeed in these fields, in the interest of the country.

We thus have a vast agenda for research, skill development and indigenous effort. It is an agenda for generating scientific and technological tools which will enable our society to cope with the future effectively in its own way. I.I.Ts. and similar institutions should carefully examine their role as well as teaching and research activities in the light of these demands of the future. Many of these technologies of the future are based on life sciences and the biological and physical sciences together are helping to create the new technologies. It is possible that the Institute of technology of the future would have full-fledged life science departments just as they have separate departments in physical sciences. These are evolutionary possibilities and deserve careful examination. ☐

Prof. Ram Reddy Takes Over as AIU President

Dr. Gaddam Ram Reddy, Vice-Chancellor, Indira Gandhi National Open University, has taken over as President of the Association of Indian Universities on the expiry of the term of Prof. S.V. Chittibabu as Vice-Chancellor, Annamalai Univ.



Prof. G. Ram Reddy

Prof. Ram Reddy brings with him wide and varied experience as a teacher, researcher and educational administrator. By his pioneering work in the field of distance education and having established first, the Andhra Pradesh Open University in Hyderabad and then, the Indira Gandhi National Open University at Delhi, Prof. Ram Reddy has deservedly earned a reputation as an institution builder.

Prof. Ram Reddy was associated with Osmania University, Hyderabad for over a decade. He was Professor of Public Administration at the Post-graduate Centre, Warangal (1969-71), Professor and Head of the Department of Political Science (1972-77), and then Vice-Chancellor (1977-1982). In 1978 he prepared a report on Open University at the request of the Government of Andhra Pradesh. He was also the Chairman of the Committee appointed by the Government of Andhra Pradesh to look into the feasibility of establishing an Open University in the State in 1982. 'Open Learning System', the report of this committee, became the basis for the establishment of the Open University in Andhra Pradesh. Prof. Ram Reddy was named as its first Vice-Chancellor when the University was set up in 1982. He held this office till March 1985 when he was called upon to be the Convenor of the Committee appointed by the Govt. of India to prepare a project report on the establishment of the Indira Gandhi National Open University. History repeated itself when the project report became the basis for the establishment of the National Open University and Prof. Ram Reddy its first Vice-Chancellor.

Widely travelled, Prof. Ram Reddy has visited Hong Kong, Thailand, Malaysia, West Indies, Jamaica, Barbados, Japan, West Germany, Spain, France, U.K., U.S.A., U.S. S.R. and Canada to study their system of education with particular reference to distance education. He has been associated with several national and international bodies and has served on a number of committees like the Committee for the establishment of a women's university in Andhra Pradesh; High level committee to review the existing administrative arrangement for Rural Development and Poverty Alleviation Programme (Govt. of India); Advisory Committee on the Study of Alternate Models for the Management of Universities; Review Committee of the University Grants Commission, Review Committee of the Indian Council of Social Science Research; Committee on New Universities of University Grants Commission; Executive Council, Association of Commonwealth Universities, etc.

We heartily welcome Prof. Ram Reddy as our new President and wish him a very successful term. Under his dynamic leadership, the Association will take decisive strides in its service to the member universities and to the cause of higher education.

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
January 4-24, 1987	All India Short-term Institute in Chromatographic Techniques.	To give an exposure to the participants on the theory and practice of modern chromatography.	Department of Applied Chemistry, Cochin University of Science and Technology, Cochin.	Dr. V. N. Sivasankara Pillai (Director of the Programme) Department of Applied Chemistry, Cochin University of Science and Technology, Cochin.
January 6-9, 1987	**International Seminar on Cement and Allied Building Materials**	**Exchange of knowledge and experience to assist the cement and building materials industries in their technological growth and development through regional and international co-operation and collaboration.**	**National Council for Cement and Building Materials, New Delhi.**	**The Organising Secretary, National Council for Cement and Building Materials, M-10, South Extension Part II, Ring Road, New Delhi.**
January 15-17, 1987	Second National Conference on System Dynamics	Intended to bring together researchers and practitioners in the field of System Dynamics, managers and executives involved in long range planning activities.	Department of Mechanical Engineering, Institute of Technology, Banaras Hindu University (BHU), Varanasi.	Dr. Sushil K. Sharma Organising Secretary, Department of Mechanical Engg, Institute of Technology, BHU, Varanasi.
February 16-19, 1987	National Seminar on Crystal Growth and Characterisation of Advanced Materials for Solid State Applications	Topics to be covered are: Theoretical and Experimental aspects of crystal growth; Heat and Mass transport; Industrial Crystallisation; Rapid Solidification and Casting; Biological and Molecular Crystals; and Special Crystals—New Techniques and Instrumentation.	Crystal Growth Centre, Anna University, Madras.	Prof P. Ramasamy Convener, Third National Seminar on Crystal Growth, Crystal Growth Centre, Anna University, Madras.
March 13-14, 1987	National Symposium on Development of India's Mineral and Fuel Resources: Geological and Environmental Aspects.	To promote in-depth dialogue on the entire spectrum of the Mineral Sector involving the metallic and non-metallic minerals, coal, ground water, oil and natural gas.	Department of Applied Geology, Indian School of Mines, Dhanbad.	Prof. K.L. Rai, Convenor, DJ National Symposium, Department of Applied Geology, Indian School of Mines, Dhanbad-826004.
April 7-17, 1987	Introductory Course in Phonetics and Spoken English	To acquaint college and university teachers of English with the problems of English speech and pronunciation.	Central Institute of English and Foreign Languages, Regional Centre, Lucknow.	Prof. V.D. Singh, Course Director & Officer-in-charge, Central Institute of English and Foreign Languages, Regional Centre, Moti Mahal Campus, 2 Rana Pratap Marg, Lucknow-226001.
December 29-31, 1987	Second International Ain Shams University Conference on Production, Engineering and Design for Development	To bring together scientists and engineers at various institutions and strengthening their links with industry in research and development.	Department of Design and Production Engineering, Ain Shams University, Abbassia, Cairo.	Prof. Moustafa A. Chaaban, Organising Committee Chairman, Department of Design & Production Engineering, Faculty of Engineering, Ain Shams University, Abbassia, Cairo, Egypt.

Urbanisation & Regional Development

A two-day seminar on "Urbanisation and Regional Development" sponsored by the Indian Council for Social Sciences Research (ICSSR), North-Western Region, Chandigarh, was organised by the Dept. of Economics, Government Postgraduate College, Dharamsala, on 16-17, December, 1986. Over 25 scholars from four universities and four Colleges participated in the seminar. Dr. Atma Ram, Principal of the College and Dr. Narendra Awasthi acted as the Director and Organising Secretary of the seminar.

Shri P.C. Dogra, IAS, Deputy Commissioner, Kangra, who inaugurated the seminar, stressed the importance of the theme of the seminar and urged the participants to concentrate on vital problems concerning urban development in the present context.

The seminar held six sessions at which papers dealing with various aspects of urbanisation and development were presented and discussed at length. The following recommendations emerged from the deliberations at the seminar:

(1) There should be emphasis on rural development so as to check exodus of population from rural to urban areas;

(2) Expenditure on provisions and maintenance of urban civic amenities should be increased in proportion to the growth of urban population;

(3) There should be coordination between planning and implementation of urban development programmes;

(4) Integrated development of urban areas in respect of all infrastructural facilities, human development and welfare measures, like junk yards for refuse disposal, sanitation, slum clearance and prevention of pollution;

(5) In a programme of urban development fiscal policy should be so structured that disincentives are created for further agglomeration of economic activity in the already congested big cities and corresponding incentives are provided for dispersal of such activities to smaller towns;

(6) Proper economic interaction may be created between the urban centres and their peripheral rural areas so that one acts as a catalyst for the growth of the other;

(7) Social and economic infrastructure be strengthened in the smaller towns and rural areas so as to prevent concentration of population in big cities;

(8) In order to encourage the development of new towns, economic incentives may be provided for the decentralization of business and industrial activities in general, in the interest of balanced regional development;

(9) To avoid the menace of overcrowding and unplanned development of big cities, policy should be formulated for the establishment of satellite towns to act as counter magnets to the prevaling trend of the migration to big cities;

(10) A high powered committee consisting of experts, academecians and Govt. officials should be set up to develop a blue print of policy for urban development in Himachal Pardesh which should ensure that some of the ugly features of urbanisation in plains are not duplicated in the hills;

(11) A Centre for the Study of Urbanisation and Regional Development should be set up in one of the States of North-Western India;

(12) The research in the area of inquiry should try to assess the relative roles of economic and non-economic factors in the process of urbanisation;

(13) The State Governments of this region should provide research facilities including finances for the study of urbanisation and regional development to the scholars and students of this region; and

(14) Research Projects should be sanctioned by the Central and State Governments to study the rural-urban integration and interaction and to suggest the measures to strengthen it.

Ch. Dhani Ram, IAS, Divisional Commissioner delivered the Valedictory adress. He pointed out that urbanisation has created regional imbalance. Although problems were the same, perspective planning of specific areas was lacking. He complimented the seminarians for generating new ideas and insightful deliberations and recommending concrete steps for the regional development of the north-west of India.

Short-term Course in Polymer Technology

Dr. K. Gopalan, Vice-Chancellor, Cochin University of Science and Technology, stressed the need for continuing education and extension programmes in all fields and at all levels. He was delivering the valedictory address of the UGC sponsored all-India short-term institute in Polymer Technology organised by the University Department of Polymer Science and Rubber Technology.

The Institute included practical sessions making use of the several sophisticated equipment available at the University Department of Polymer Science and Rubber Technology, besides factory visits and class-rooms lectures by experts in the field, drawn from national institutions and the Department's own faculty.

Thirty senior professors and researchers representing various universities, R&D establishments and industrial organisations spread all over the country attended the 3-week long intensive programme.

Thrust Area Programme for Jammu University

The Department of Science & Technology (D.S.T.), Govt. of India, periodically finances certain projects under the Thrust Area Programmes, determined by the Science & Engineering Research Council (SERC)—an advisory body to the D.S.T. A prestigious project under the thrust area has been allotted to the Department of Geology, University of Jammu, with Professor S.K. Shah as Principal Instigator. The project is a part of Solid Earth Programme and has been allotted to Presidency College, Calcutta, University of Roorkee, Wadia Institute of Himalayan Geology, Dehradun, in addition to the University of Jammu. The Department of Geology of the Jammu University has received funds for the purchase of Scanning Electronic Microscope, a highly sophisticated instrument. The total grants sanctioned to this Department under this project are over Rs. 11 Lakhs.

News from Agril. Varsities

Nuclear Science for Agriculture

Dr P.K. Iyengar, Director, Bhabha Atomic Research Centre (BARC) has laid stress on the need for the application of nuclear science in the field of agriculture. Dr Iyegnar was addressing a national symposium on "Solid State Physics" organised by the Board of Research in Nuclear Sciences of the Atomic Energy Department of Union Government, at G.B. Pant University of Agriculture and Technology.

He said the need of the time was to strengthen cooperative research in biological and nuclear sciences for effective application of atomic energy for agricultural development. Citing a few examples, the BARC Director said the mutation caused by radiation could go a long way in the development of new crop varieties. Besides, nuclear techniques have enough scope in hydrology, tracer studies and agrobiotechnology. The use of radio isotopes has an enormous scope in the preservation of vegetables and fruits, he said. The electric power generated through nuclear process was much cheaper and economical than thermal power generation. About 60 per cent of the total power generation is consumed by agricultural sector.

Mr. Kripa Narain, Vice-Chancellor of the University, in his inaugural address, felt the need for a National Institute of Solid State for the production of high quality materials. Such an Institute, he said, should also have close collaboration with theoreticians so that developments are properly interpreted. There should be a mechanism for transfer of Solid State Technology to industry to ensure feedback from the common man to the scientist. This interaction, Mr. Narain said, becomes important in the field of agricultural education as there is a dire need of the lab-to-land interaction. The Vice-Chancellor stressed the need for promoting research on the use of semiconductor devices in the materials exploiting alternate energy sources.

Dr. D. Sharma, Dean, Basic Sciences, highlighted various developments of the University in the field of Solid State Physics. He underlined the need for working out means on how to use nuclear science for increasing agricultural productivity, in particular reference to agrobiotechnology, gene transfer, tissue culture, besides hydroponics.

SOLID STATE PHYSICS
Symposium

Mr. Kripa Narain, VC, G.B. Pant University, delivering the inaugural address

Over 350 nuclear scientists and experts from various public and private sector research institutes besides universities participated in the symposium. Over 250 papers were presented at the symposium, 29th in the series, which was held for the first time in an agricultural university.

HAU Plans for NARP

With a view to strengthen the research capabilities at the regional research stations, the Hayana Agricultural University has finalised plans under the second phase of the National Agricultural Research Project (NARP). Under the programme, research projects would be taken up in the North Eastern part of Haryana : Rohtak, Karnal, Kaul, Buria, Ambala and Bunga.

At Rohtak, research on flooding effects on various crops, development of technology for flood affected areas and testing of paddy and sugarcane crops would be taken up. At Karnal, parasitology programme would be strengthened and existing facilities on water management and training to State Department of Agriulture officials would be strengthened. At Kaul, rice processing work will be started and work on utilisation of paddy straw as animal feed would be taken up. Farm forestry work would be developed at Khrindwa and research on establishing new trees, seed nurseries and seed production work on trees would be strengthened.

Buria would be developed as an Advanced Centre of Horticultural Research where work on development and identification of fruit trees like mango, leechi would be taken up.

Plans are also being prepared for setting up a Centre at Loharu for developing technology on sand dune stabilisation, develoment of farm forestry and establishment of good breeds of animals like sheep and goat and nutritional problems of animals. The Centre would develop technology not only for Haryana, but adjoining areas of Rajasthan also.

News from UGC

INSAT-1B Programme of UGC

Between 5th & 15th January, 1987 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

5-1-87

"Modelling Cranes"
"Diseases of Heart"
"The Biological Sciences: Evolutionary Biology"

6-1-87

"Heat through the Lithosphere"
"A Journey through Shahjahanabad"
"Jonas Irinyi"

7-1-87

"Modelling Pollution"
"Fuels"
"Self Organisation in Chemical Systems"

8-1-87

"People's Science"
"Astronomy Before Technology: With the Head Facing South"

9-1-87

"Complex Numbers"
"Tissue Culture"
"Pantangotsav"

10-1-87 (Saturday)

No Telecast

11-1-87 (Sunday)

No Telecast

12-1-87

No Telecast

13-1-87

"Where has all the Granite Gone?"
"Money"
"Snakes—Know them well"

14-1-87

No Telecast

15-1-87

"Teleteach-Inquiry Training Model"
"Astronomy Before Technology: Mathematics Carved in Stone"
"Sulphur & Its Compounds"

UNIVERSITY NEWS
WISHES
ITS READERS
A HAPPY NEW YEAR

News from Abroad

Higher Education in Russia

The USSR Minister of Higher and Specialised Secondary Education Gennadi Yagodin said that the higher education system had nearly achieved the scope which would fully cater for this nation's demand in college-educated personnel. The Soviet achievement in higher education, he added, won the Soviet diplomas international recognition. At present, over 1,00,000 young men and women from 145 foreign countries study at Soviet universities, or colleges. More than 2,40,000 foreign graduates of Soviet institutions of higher learning are already working for the development of their countries. In dozens of countries national personnel training centres have been set up with Soviet assistance.

New Type of Laser

A team of physicists led by Dr Rod Tobin at Monash University, in Melbourne, have developed a new type of laser which promises several major additional applications for laser technology. Multi-coloured lasers are proposed to the produced.

The Monash system uses metal vapour to produce the laser light at room temperature, so it is more compact and can be built from less expensive materials than current lasers which heat metal to 1600°C (2912°F) to produce the vapour.

A laser works by atoms dropping from a higher to a lower energy level and emitting light. The colour of the laser beam depends on the range of energy level transitions available, which, in turn, depends on what atoms or molecules are being stimulated. For example, copper gives a green light and gold gives a red light.

Metals in general provide useful transitions but need to be in the form of a vapour. The conventional way of doing this has been by heating. But metal can be vapourised at lower temperatures by an electrical phenomenon known as sputtering. Sputtering takes place in a tube filled with gas at very low pressure and equipped with a negatively charged termila (a cathode) coated in the metal. Electrical discharges through the gas then strip the gas atoms of electrons, and the resulting positively charged atoms are attracted to the negative cathode. When they collide with the cathode they knock the neutral metal atoms off the cathode to form a vapour which is drawn off by a stream of chemically inactive gases. The metal's atoms are then pumped up to higher energy levels by a second electrical discharge. Then they drop to a lower energy level, producing a laser beam.

Sports News

Varsities Women Hockey Team

A 16-member team has been selected at the conclusion of the three-day selection trials (18-20 Dec. 1986) held at Gandhiji University. The members of the team are:

1. Davinder Kaur (Capt.)
   — Panjab Univ.
2. Ranjana Kataria
   — Panjab Univ.
3. Sarojini Dung Dung
   — Ranchi Univ.
4. Sunita
   — Panjab Univ.
5. Bibiana Dung Dung
   — Ranchi Univ.
6. Vijaya Kumari
   — Ranchi Univ.
7. Sharly K.C.
   Gandhiji Univ.
8. Tessy C. Kurian
   - Gandhiji Univ.
9. Sobhana V.V.
   - Gandhiji Univ.
10. Gigimol N.M.
    — Gandhiji Univ.
11. Cigi Xavior
    — Gandhiji Univ.
12. Jolly P.D.
    — Gandhiji Univ.
13. Jameda P.R.
    — Gandhiji Univ.
14. L.C. Markose
    — Gandhiji Univ.
15. Aleyamma Mathew
    — Gandhiji Univ.
16. Virenda Kumari
    — Kerala Univ.

A coaching camp for the selected members of the team commenced on Dec. 21, 1986 under the charge of Mr. B. Kandulna, Hockey Coach of Ranchi University. At the conclusion of the coaching camp the team will participate in the Senior National Women Hockey Championship being held at Trivandrum from Jan. 2 to 11, 1987.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Psychology

1. Gangadharan, P.B. *Celestial dependence of personality.* Kerala. Dr H. Sam Sananda Raj.

Sociology

1. Awasthi, Mahendra Kumar. *A study of socio-psychological aspects of the problems of the inmates in a Central Jail of Madhya Pradesh.* HS Gour. Prof. G.C. Jain.

2. Bhardwaj, Ramadhar. *Assessment of stress on inmates of a prison and a borstal.* HS Gour. Prof. S.C. Tiwari.

3. Jose Boban, K. *Changing medical and related ritual practices among the tribals: A study among the Muthuvans and Mannans of Idukki District.* Kerala.

4. Kuchbandiya, Prahlad Singh. *Madhya Pradesh mein kanjaron kee samajik arthik prishtbhumi evam unke punravas kee samasya.* HS Gour. Dr. H.S. Maheshwari.

5. Powar, Krishna Somarao. *Sociological aspects of health problems: A study of patients of Civil Hospital, Dharwad.* Shivaji. Dr. J.B. Ambekar.

6. Salunkhe, Surjerao Anandrao. *Trade union leadership in Kolhapur and Ichalkaranji.* Shivaji. Dr. R.B. Patil.

7. Srihari, A.K. *Impact of modern technology in the socio-economic conditions of the traditional artisans of Kerala.* Kerala.

Social Anthropology

1. Mathur, Nita. *An anthropological perspective on dance and cultural traditions amongst women of Tamil Brahmine Community.* Delhi. Dr. V.C. Channa.

Economics

1. Dube, Ragini. *Trends and patterns of agricultural productivity in Sagar District, Madhya Pradesh,* 1974-75 *to* 1983-84. HS Gour. Prof. R. Malhotra.

2. Gopal Prasad. *Sagar Sambhag mein State Bank of India ka madhyam evan laghu udyogon kee vitt vyavastha mein yogdan.* HS Gour. Dr. S.K. Pandey.

3. Jain, Savita. *Madhya Pradesh ke vitt mein rajya utpadan shulk kee bhumika: Ek vishleshnatmak adhyayan.* HS Gour. Dr. O.P. Mishra.

4. Jain, Vibha. *Trade union movements in coal mines of M.P.* HS Gour. Dr. K.C. Jain.

5. Pandey, Dinesh Chandra. *Madhya Pradesh ke cement udyog mein shram prabandh sambandh.* HS Gour. Dr. K.C. Jain.

6. Pathak, Pravina. *Sagar Sambhag mein sehkari sakh andolan,* 1972-1986*: Ek arthik vishleshan.* HS Gour. Dr. K.C. Jain.

7. Rajput, Balbir Singh. *Sagar Sambhag mein krishi ke vikas mein takniki privartanon ka yogdan,* 1973 *se* 1983 *tak.* HS Gour. Dr. S.K. Pandey.

8. Sayed Ghadir Mohammadian. *Regional economic imbalances with special reference to Northern Provinces of Iran.* Shivaji. Dr. T.G. Naik.

9. Thakur, Kiran. *Mandla Jile kee pramukh van upajon ka arthik adhyayan.* HS Gour. Dr. S.K. Pandey.

10. Vakhle, Shubha. *Rashtriyakrit Bankon dwara shikshit berojgaron ko dee jane wali arthik sahayata ka adhyayan. Sagar Sambhag ke vishesh sandarbh mein.* HS Gour. Dr. S. K. Pandey.

Commerce

1. Felix, Folejimi Akindunni. *A study of petroleum industry and its impact on the Nigerian economy: Problems and prospects.* Shivaji. Dr. D.H. Hindocha.

2. Khichadi, Ningappa Dundappa. *Progress problems and prospects of urban co-operative banks with special reference to urban Co-operative Banks in Kolhapur District period 1980-onwards.* Shivaji. Dr. V.V. Khanzode.

3. Reza, Paknezhad Ali. *A study evaluation of employees training programmes in selected industries in Iran.* Shivaji. Dr. P.S. Rao.

Education

1. Gaikwad, Keshav Datta. *Effect of mastery over theory and planning skills upon the teacher trainees' performance of concept attainment model.* Shivaji. Dr. A.N. Joshi.

HUMANITIES

Philosophy

1. Geethamony, Aman S. *Sarvavedanta sidhanta sarasangraha: A study.* Kerala.

2. Maya, M.S. *The yoga philosophy and religion.* Kerala.

3. Sylaja Kumari, R. *Post-Sankara philosophers of Kerala.* Kerala.

Language & Literature

English

1. Samal, Manas Ranjan. *A study of realism and naturalism in the novels of Theoders Dreiser.* HS Gour. Dr. Shanti Shivraman.

2. Shaikh Mohammad Ismail Abdulrahim. *A study of the novels of Rumer Godden.* Shivaji. Dr. S.K. Desai.

Marathi

1. Deshpande, Dattatray Venkatesh. *Shree Parabrahma Gopalnath Maharaj, Triputi: Vyakti ani Vangmay.* Shivaji. Dr. S.R. Chavan.

Malayalam

1. Rajendran Nair, K.P. *Place names of Quilon District: A study.* Kerala. Dr. P. Ramachandran Pillai.

2. Sheeja, R.S. *Historic elements of C.V. Raman Pillai's novels.* Kerala. Dr. N.R. Gopinathan Pillai.

Geography

1. Ingale, S.D. *Socio-economic impact of emerging growth centres on rural Satara District: A geographical analysis.* Shivaji Dr. S.B. Deshmukh.

2. Jaiswal, Anita. *Indore Nagar kee nagariya pravanta ka vishleshan tatha kshetriya niyojan mein uska yogdan.* Devi Ahilya. Dr. Y.G. Joshi.

3. Jamadar, Kadirbasha Mahibub. *Impact of urbanisation on rural areas: A case study of the Solapur City and its fringe zone.* Shivaji. Dr. P.W. Deshmukh.

4. Sawant, P.R. *Geographical and environmental study of affected and benefitted villages by Dhom Dam of Upper Krishna Valley in Wai Taluka.* Shivaji.

History

1. Ashok Rani. *Historiography of Gandhi's All India Movements,* 1920-1942. Panjab. Prof. S.L. Malhotra and Dr. (Mrs.) Sandhya Chaudhry.

2. Upadhyaya, Anil Kumar. *Bundelkhand kshetra se prapt abhilekhon ka adhyayan prarmbh se poorva madhyakal tak.* HS Gour. Prof. Sudhakar Pandey.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Gupta, Geetha Rao. *Role conflicts and coping strategies: A study on Indian Women.* Bangalore.

2. Joseph, James. *A study of the problems and personality of the aged in Kerala.* Kerala.

3. Khanna, Beerendra Bahadur. *Relationship between organizational climate and organizational role stress and their impact upon organizational effectiveness: A case study.* BHU.

4. Mishra, Dhirendra Kumar. *A comparative study of urban and rural adolescents with reference to certain personality factors and values.* BHU.

5. Mishra, Vijay Shankar. *A study of accident-proneness among coal miners.* BHU.

6. Raghavan, Radha. *A study of family dynamics and school achievement as related to neurotic tendencies of high school students.* HS Gour.

7. Sehgal, Usha. *Study of some needs as moderating variables in role stress and job strains relationship.* BHU.

8. Srivastava, Abha. *Measurement of abstract thinking in psychotic patients.* BHU.

9. Srivastava, Kumkum. *A study of job role stress and off the job personal adjustment of two career-couples.* BHU.

10. Tiwari, Kamlesh. *Construction and standardization of a test for assessment of disability in psychiatric patients.* BHU.

Sociology

1. Agrawal, Nutan. *Varanasi kee Dom Jati kee samajik-arthik dasha ka samaj-vaigyanik adhyayan.* BHU.

2. Bandyopadhyaya, Dwarika Nath. *Role of academic intellectuals in the contemporary Indian society.* Kanpur.

3. Bhargava, Laxmi. *A psycho-social study of infertile women.* BHU.

4. Gurung, Geneshman. *The changes of Nepal: A sociological study.* BHU.

5. Inbanathan, Anand. *Tamil migrants in Delhi: A sociological analysis of the styles of adaptation.* JNU.

6. Sharma, Aruna. *Citizens and crime: A sociological study of citizens' perceptions of some aspects of crime Problems.* BHU.

7. Singh, Birendra Shanker. *Bandhua majduron ka samaj-vaigyanik adhyayan: Bihar Rajya ke Palamu Jile per adharit.* BHU.

8. Singh, Ravi Pratap. *Anusuchit jati ke vidhanmandaliya abhijan: Uttar Pradesh, Bihar evam Madhya Pradesh per adharit samajvaigyanik adhyayan.* BHU.

9. Swarna Kumari, Upadrashta. *The changing pattern of jajmani relations with special reference to occupational mobility among Karmins.* Andhra.

10. Zahidul Islam. *A Garo village in Bangladesh: A sociological study.* BHU.

Social Anthropology

1. Chakma, Sudhir K. *Social change in Chakma society in the Chittagong Hill Tracks of Bangladesh.* Poona.

Political Science

1. Mehra, Ajay Kumar. *Politics of urban redevelopment: A case study of Old Delhi.* JNU.

2. Raravikar, Yashvant G. *Zilla Parishad finances: A case study of Nasik Zilla Parishad.* Poona.

3. Sahu, Takadhar. *Political and constitutional changes in Nepal*, 1962-1983. BHU.

4. Shaikh Abdus Salam. *Bangladesh mass media and the profile of India, U.S.A. and U.S.S.R. with special attention to India, in them.* Poona.

5. Sharma, Ram Avtar. *Indira Gandhi and Congress Party: A study in leadership from* 1966 *to* 1977. Delhi.

6. Vengadam, R. *Parliamentary supremacy Vs judicial supremacy in India.* Osmania.

Economics

1. Chanserker, Arun Raghunath. *The role of State Bank Group in rural industrialisation of M.P.* Devi Ahilya.

2. Deshpande, Vinayak Shridhar. *An analysis of the relationship of size of landholdings with income and expenditure.* Nagpur.

3. Gandhi, R.K. *Capacity defination and measurement: A micro study with special reference to three chemical industries in India.* Saurashtra.

4. Joshi, Madhukar Rangnathrao. *Optimization of cropping pattern in Parbhani district.* M.P. Krishi.

5. Kaul, Deepak. *Debt burden of Government of Madhya Pradesh.* Devi Ahilya.

6. Mukherjee, Rupa. *Nepal's trade relation with India,* 1950-1980. BHU.

7. Nageswara Rao, K. *Economics of water supply: A case study of drinking water supply undertakings in some of the urban centres of Rayalaseema.* Krishnadevaraya.

8. Singh, Khundrakpam Jayanta Kumar. *State finances in Manipur.* BHU.

9. Singh, Krishan Murari. *Agricultural planning for a hill area: A multilevel, multiobjective planning approach in Almora district, Uttar Pradesh.* BHU.

10. Surendra Nath. *Kutir udyogon kee samasya tatha sambhavanaye: Chiraigaon Vikas Khand ka ek adhyayan.* BHU.

11. Tripathi, Jyoti Bhushan. *A study of commercial bank finances to agriculture in Chiraigaon.* BHU.

12. Verma, Ajit. *A study of farm finance in Chiraigaon Block, Varanasi District, U.P.* BHU.

Public Administration

1. Shetty, H.B.N. *Integrated rural development: Tamilnadu experience.* Osmania.

2. Soundrara Rajan, M.V. *University hostels: A study in management with special reference to University hostels in A.P.* Osmaina.

Education

1. Desai, Jerambhai Jethabhai. *A study of the attitude of the school going adolescents towards physical education programme in the schools with reference to personality characteristics.* Patel.

2. Jumpangern, Pattramon Thongmoah. *A study of social maturity of teachers college students of western region of Thailand in context of some psychosocio factors.* Patel.

3. Jumpangern, Thongmoah. *An exploratory study of creative thinking ability ofstudents of stds. V, VI & VII of Petchuburi Province of Thailand in context of some psycho-socio factors.* Patel.

4. Mahesh Chand. *A comparative study of the ideas of Bruner and Piaget on concept development.* Delhi.

5. Nandanpawar, Baburao S. *Vidhyasaryanchaya bhashik sarjanshee-Itecha vikas: Ek prayogik prakalp.* Nagpur.

6. Pandey, Vidyanand. *Swatantrata pashchat purvi Uttar Pradesh mein prathmik shikshak prashikshan ka vikas.* BHU.

7. Rout, Purna Chandra. *A multidimensional approach for analysis of trends perspectives and educational programmes in tribal education and formulation of action strategies.* Utkal.

8. Sadashivayogaiah, A. *The role of private enterprises development of education in Karnatak: A case study.* Karnatak.

9. Shah, Rita. *A survey of daily activities, existing intelligence and attitudes of rural woman towards adult education programmes of Varanasi.* BHU.

Commerce

1. Andotra, Neetu. *Marketing of forest based products in Jammu Division.* Jammu.

2. Cholkar, Shailaya K. *Role of sicom in industrial development with special reference to Nasik Growth Centre.* Poona.

3. Hrushikosava Rao, Pokala. *Regional rural banks.* Andhra.

4. Naik, Govindrao Bomayya. *Working of industrial estates in Bombay, Karnatak.* Karnatak.

5. Narula, Subhash. *An analysis of India's exports of Gulf Countries.* Delhi.

6. Singh, Radhey Sham. *Financing of small scale industries in India.* BHU.

7. Surana, Varsha. *Madhyapradesh mein soyabeen tel udyog.* Devi Ahilya.

8. Talekar Dattary N. *Analysis of inventory and purchase management problems in selected small scale industrial units of Poona for the period,* 1982-84. Poona.

Home Science

1. Chakravarty, Archana. *A field survey to study the infant feeding practices in relation with the growth and development of babies in the first year of life in Varanasi.* BHU.

Management

1. Kher, Manik S. *Alienation and participative management.* Poona.

2. Rannath, Elaswarapu Rekha. *MIS for materials management: A case study.* BHU.

3. Sarkar, Haradhan. *Human resource accounting: A case study of Indian Coal Industry.* BHU.

INDIAN SCHOOL OF MINES

DHANBAD-826004

ADMISSION NOTICE—1987

No : 601001/86 **Dated : 24-11-1986**

Indian School of Mines, deemed to be a University under the UGC Act, invites applications from candidates desirous to appear at its Entrance Examinations on **2nd** & **3rd** May, 1987 for admission to different programmes as per details given below:

Form No.	Name of the Programme	Disciplines of Admission	Number of seats.	Minimum qualification for admission	Maximum age limit* as on 15-6-87 (yrs)	Subjects of Entrance Examination	Remarks
1	2	3	4	5	6	7	8
A.	4-year (8-Semester) B. Tech.	(i) Mining Engg.	60	Pass in I.Sc. or two years PUC or class XII of CBSE or +2 of 10+2 pattern or equivalent exam with Physics, Chemistry, Mathematics and English.	21 years for Pet. Engg. and 22 for others.	(i) English and General Knowledge (ii) Physics. (iii) Chemistry (iv) Mathematics	
		(ii) Open Cast Mining.	15				
		(iii) Mining Machinery.	30				
		(iv) Petroleum Engg.	30				
		(v) Mineral Engg.	15				
B.	3-year (6-Semester) Earth Science M.Sc. Tech.	(i) Applied Geology	20	Pass in B.Sc. (3 year course)/ (B.Sc. 2 year+1 yr. Bridge course) of 10+2+3 pattern with Geology and any two subjects out of Physics, Chemistry and Mathematics.	24	(i) Compulsory : **Higher Geology** (ii) Optional: one from Physics, Chemistry and Mathematics.	(i) The Candidate should have passed 10+2 or equivalent exam. with Physics, Chemistry, Mathematics and English.
		(ii) Applied Geophysics.	20	Pass in B.Sc (3 year course)/ (B.Sc. 2 yr+1 yr. Bridge course) of 10+2+3 pattern with Physics and Mathematics and any one subject out of Chemistry, Geology and Statistics.	24	(i) Compulsory : **Higher Physics** (ii) Optional : one from Mathematics, Chemistry, Statistics and Geology.	(ii) Candidates wishing to apply for admission to M.Sc. Tech. both in Applied Geology and Applied Geophysics must offer Higher Physics and Higher Geology.
C.	3-year (6-Semester) Condensed B. Tech.	(i) Mining Engg.	5	Diploma in Mining or in Mining and Mine Surveying	No age limit	(i) English and General Knowledge. (ii) Physics. (iii) Chemistry (iv) Mathematics	(i) The candidate should have passed Diploma after SSLC/HS or equivalent exam. and should have had 3 yrs. Industrial experience after Diploma. (ii) Sponsored candidates preferred.
		(ii) Mineral Engg.	5	Diploma in Mining/Mineral. Engg./ Chem. Engg./Elect./ Mech. Engg.			
		(iii) Mining Machinery	5	Diploma in Mech./ Elect. Engg.			

1	2	3	4	5	6	7	8
D.	Make-up admission to III Semester of B. Tech. (6-Semester)	(i) Mining Engg. (ii) Mining Machinery. (iii) Mineral Engineering.	subject to vacancies available	(i) B.Sc. (2 year course) with Physics, Chemistry and Mathematics. (ii) Pass in Institution of Engineers studentship Exam. with one year's industrial experience in relevant field.	23 yrs.	(i) Physics. (ii) Chemistry. (iii) Mathematics (iv) English.	Examination will be conducted only if number of candidates is minimum 50.
E.	Make-up admission to V. Semester of B. Tech (4-Semester)	(i) Mining Engg. (ii) Mining Machinery.	-Do-	Diploma in Mech./Elect./Mining Engg. with pass in Sec. A of AMIE and with one year's industrial experience in relevant field.	No age limit	(i) Mathematics (ii) Mech. Engg. (iii) Electrical Engg. (iv) Engineering. Drawing.	-Do-

Those who are appearing at any of the qualifying examinations may also apply; however their admissions (if selected) will be subject to the condition that their examinations (both theory and practicals) have finished earlier than 15th June 1987 and that the results are announced before 30th September, 1987.

General :

(i) Those qualifying in the Entrance Examination for Pet. Engg. Programme A, may be required to appear for a personal interview as well.

(ii) 15% of the seats in all programmes are reserved for Scheduled Caste and 7½% for Scheduled Tribe candidates.

(iii) One seat each in Petroleum Engg., Opencast Mining and Mineral Engg. of B. Tech. programme and one seat each Applied Geology and Applied Geophysics of M.Sc. Tech programme are reserved for GIRL CANDIDATES subject to their qualifying in the relevant Entrance Examination as specified in Memorandum of Information. **Girl candidates are not eligible for other programmes.**

(iv) One setat in B.Tech and M.Sc. Tech. programmes is reserved for a good sportsman who has represented his University State in Inter State or Inter University tournaments.

(v) Two seats are reserved in B.Tech. programme for Children/Wards of Defence personnel killed/disabled in war or during peace period.

(vi) One seat in B.Tech. programme is reserved for Children/Wards of persons employed in mining industry and killed or disabled in mining accidents.

(vii) Last date for availability of Form by Post : **February 16, 1987.**

(viii) LAST DATE FOR RECEIPT OF COMPLETED APPLICATIONS: **FEB 23, 1987.**

No reason whatsoever shall be considered valid for late submission of the completed form.

Detailed Memorandum of Information and the Application Forms (A,B,C,D or E), available from 1st January, 1987 onwards, can be had from the office of the undersigned either in person or by post on remitting a **Crossed** Indian Postal Order for Rs. 10/- payable to Registrar, Indian School of Mines, Dhanbad at ISM Post Office, Dhanbad. (**No Bank Draft Money Orders are acceptable**) and a self addressed unstamped envelope (size 28 cm x 18 cm).

Candidates should CLEARLY SPECIFY the form they require (A,B,C,D or E) in their request and superscribe the same on the self-addressed envelope.

Note: Entrance Examinations for lateral admissions to III and V Semesters will be conducted only if number of applicants is 50 or above.

S. P. Varma
REGISTRAR

Lakshmibai National College of Physical Education, Gwalior

(AUTONOMOUS COLLEGE)

(Sponsored by the Union Ministry of Human Resource Development)

SEVENTEENTH NATIONAL PRIZE COMPETITION FOR PUBLISHED LITERATURE IN PHYSICAL EDUCATION AND SPORTS SCIENCES, GAMES, SPORTS AND INDIGENEOUS ACTIVITIES, RECREATION, YOGA RELATED TO PHYSICAL EDUCATION AND HEALTH EDUCATION RELATED TO PHYSICAL EDUCATION : 1986-87

1. Under the Scheme of National Prize Competition for the Published Literature on Physical Education and Sports Sciences, Games, Sports and Indigeneous Activities, Recreation, Yoga related to Physical Education and Health Education related to Physical Education, sponsored by the Society for the NATIONAL INSTITUTES OF PHYSICAL EDUCATION AND SPORTS (SNIPES), the Lakshmibai National College of Physical Education, Gwalior, invites entries from Publishers and Authors of books published on the above subjects by **31st January 1987.**

2. Books for the award will be considered for prizes under the following categories:

Category	—	I	Prize of Rs. 5,000.00	—	One
Category	—	II	Prize of Rs. 2,500.00	—	Two
Category	—	III	Prize of Rs. 1,500.00	—	Two
Special award for best production	—		Rs. 1,000.00	—	One

3. For entry form and the rules of competition, please write to the DIRECTOR, LAKSHMIBAI NATIONAL COLLEGE OF PHYSICAL EDUCATION : GWALIOR - 474002, (MP) enclosing a self addressed envelope of 23 × 10 cm.

ANNOUNCEMENT

SHASTRI INDO-CANADIAN INSTITUTE

92 GOLF LINKS, NEW DELHI-110003

FELLOWSHIP FOR DOCTORAL RESEARCH IN CANADIAN STUDIES IN SOCIAL SCIENCES AND HUMANITIES

THE SHASTRI INDO-CANADIAN INSTITUTE IS PLEASED TO BE ABLE TO OFFER A FELLOWSHIP IN CANADIAN STUDIES FOR AN INDIAN PH.D. STUDENT.

THE FELLOWSHIP WILL BE TENABLE FOR PH.D. THESIS RESEARCH AT A CANADIAN UNIVERSITY, AND WILL BE FOR THE 1987-88 CANADIAN ACADEMIC YEAR. APPLICANTS SHOULD HAVE COMPLETED ALL THE REQUIREMENTS FOR THE PH.D. FROM THEIR INSTITUTION WITH THE EXCEPTION OF THE DISSERTATION. APPLICANTS SHOULD FORWARD SEVEN COPIES OF THEIR BIO-DATA AND PROPOSALS, ALONG WITH LETTERS OF RECOMMENDATION FROM THESIS SUPERVISORS TO:

THE RESIDENT DIRECTOR
SHASTRI INDO-CANADIAN INSTITUTE
92 GOLF LINKS
NEW DELHI-110003, INDIA.

THE DEADLINE FOR RECEIVING APPLICATIONS IS **20 FEBRUARY 1987.** THE WINNER WILL BE ANNOUNCED NOT LATER THAN 30 APRIL, 1987. AFFILIATION ARRANGEMENTS WITH A CANADIAN UNIVERSITY WILL BE MADE BY THE HEAD OFFICE OF THE INSTITUTE.

THE FELLOWSHIP WILL PROVIDE SUPPORT AT THE LEVEL OF $ 950.00 PER MONTH FOR A PERIOD OF NINE MONTHS COMMENCING SEPTEMBER 1ST, 1987. A RESEARCH BOOK ALLOWANCE OF $ 450.00 WILL ALSO BE INCLUDED. IN ADDITION, THE INSTITUTE WILL ARRANGE AND PAY FOR THE INTERNATIONAL TRAVEL AND PROVIDE HOSPITAL COVERAGE FOR THE DURATION OF THE STAY IN CANADA.

P.N. Malik
ADMINISTRATIVE DIRECTOR

PUNJAB AGRICULTURAL UNIVERSITY
LUDHIANA

MASTER OF BUSINESS ADMINISTRATION

Applications are invited for admission to 17th batch of Master of Business Administration programme for the academic year, 1987-88 commencing from August, 1987.

ELIGIBILITY: Graduate/Postgraguate in Science/Engineering, Agril. Engineering, Technology, Veterinary and Home Science with at least 60 per cent marks at graduation level.

Candidates appearing for the final year of the Bachelors'/Masters' degree examination in 1987 can also apply. In such cases final selection will be provisional subject to fulfilment of above requirements.

SELECTION CRITERIA : There are 20 seats and admission will be made on the basis of competitive test/interview. Eligible candidates are required to appear in the written test to be held in the month of February/March, 1987 at Ludhiana. The test will include academic aptitude, numerical ability and general knowledge. Those candidates who qualify in the written test will be eligible for group discussion and interview. The candidates should be prepared to stay at their own expenses for written text etc. The place, date and timings of test will be communicated individually.

FINANCIAL AID : Liberal financial assistance is available in the shape of fellowships from a number of Business Houses, State Governments and the University. Arrangements are also exist for loan scholarships from Nationalised Banks. The deserving candidates are also eligible for half fee concession as per University Rules.

APPLICATIONS : The Prospectus alongwith application forms can be obtained from the Registrar by sending crossed Indian Postal Order(s) for Rs. 7/- by post payable to the Comtroller, Punjab Agricultural University at Post Office, PAU, Ludhiana or Rs. 5/- at counter against cash payment. The envelope containing request for application form or the completed application form should be marked **"ADMISSION TO MBA"**.

The candidates should also attach attested copies of all certificates from Matric onwards with their applications otherwise weightage of marks will not be given to them.

LAST DATE FOR RECEIPT OF APPLICATIONS: 27-1-1987.

EXAMINATION FEE : The applications should be submitted to the Registrar, Punjab Agricultural University, Ludhiana alongwith Indian Postal Order(s) for Rs. 25/- in favour of the Comptroller, PAU, Ludhiana pyable at Post Office, PAU, Ludhiana.

APPLICATIONS WITHOUT EXAMINATION FEE OF Rs. 25/- ARE LIABLE TO BE REJECTED.

CENTRE FOR WRITTEN TEST : LUDHIANA

REGISTRAR

Council of Scientific & Industrial Research

NOMINATIONS INVITED

FOR

SHANTI SWARUP BHATNAGAR PRIZES IN SCIENCE & TECHNOLOGY

FOR THE YEAR 1987

Nominations are invited by the Council of Scientific & Industrial Research for the Shanti Swarup Bhatnagar Prizes in science, including engineering and technology, for 1987. The prizes are to be given for research contributions made primarily in India during the past five years in reference to 31st December, 1986. The upper age limit of nominees for the prize is 45 years.

Five or more prizes, each of the value of Rs. 20,000, may be awarded annually for notable and outstanding research, applied or fundamental, in the following disciplines: (1) Physical Sciences, (2) Chemical Sciences, (3) Biological Sciences, (4) Enginerring Sciences, (5) Medical Sciences, (6) Mathematical Sciences, and (7) Earth Sciences.

Those who can make nominations include : presidents of approved scientific societies of all India character, Vice-chancellors, deans of science, engineering and technology and medical faculties of universities, directors of Indian Institutes of Technology, deans of faculties and heads of institutions deemed to be of university status, director generals of major R & D organizations such as the Defence Research and Development Organization, Indian Council of Agricultural Research, Indian Council of Medical Research, India Meteorological Department; Chairmen of Atomic Energy Commission, Electronics and Space Commissions, Oil and Natural Gas Commission, Science Advisory Committee to the Cabinet, etc., directors of CSIR laboratories, Bhabha Atomic Research Centre, Tata Institute of Fundamental Research, Physical Research Laboratory, Indian Association for the Cultivation of Science, etc. and Secretaries of the Department of Environment, Department of Science and Technology, Department of Electronics, Member-in-charge of Science Planning Commission and the Bhatnagar Prize winners. Deans of University faculties should recommend persons working in their institutions only and route the nominations through their respective vice-chancellors, while the Deans of faculties in IITs should send their nominations through their directors. Directors of CSIR laboratories can nominate a candidate in the discipline of their interest, irrespective of whether he is working in CSIR or outside. Each Bhatnagar prize-winner can send the nomination of one person for each per year's award in his own discipline only. Each such nomination shall give a detailed statement of work and attainments of the nominee, and a critical assessment report (in not more than 500 words) and its impact bringing out the importance of the significant contributions of the nominee made primarily during the past five years. Nominations from individuals sponsoring their own names or from non-entitled persons will not be accepted.

Nominations may be sent by registered (acknowledgement due) post along with 15 copies of detailed statements of work and attainments of each nominee etc. and the discipline under which the nominee is to be considered alongwith at least one set of reprints of significant papers published primarily during last 5 years. Nominations signed by the sponsors should be sent, marked 'confidential', to the Deputy Adviser, Extramural Research, CSIR, Rafi Marg, New Delhi-110001 by **31 March 1987**. Regulations governing the Prize and the proforma for nomination may be obtained from the above address.

CLASSIFIED ADVERTISEMENTS

BANARAS HINDU UNIVERSITY

Advertisement No. 9/1986-87

APPLICATIONS are invited for the undermentioned post. The benefit of Provident Fund/Pension, Dearness Allowance, House Rent Allowance and City Compensatory Allowances are admissible according to University rules. The retirement age of University employees is 60 years. The appointment will be made on one year probation.

Application should be made on plain paper duly supported with a Bank Draft or Crossed Indian Postal Orders of Rs. 10.00 (of Rs. 2.50 for the candidates belonging to S.C./S.T. category) in favour of the Registrar, BHU, towards application fee and should be addressed to the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221005. It should be clearly typed or legibly handwritten and accompanied by one set of attested copies of all certificates, marksheets, testimonials etc. and containing the following information; (1) Post applied for...... (2) Advertisement No....... (3) Name, in full, (4) Address in full—permanent and present, (5) Date of birth, (6) Educational qualifications with division and percentage of marks obtained in each examination, (7) Field of specialisation, (8 Research experience with list of publications, (9) Teaching experience with detail, (10) Appointments held so far, (11) Additional details, if any, (12) Signature.

Candidates called for interview for the post will be paid actual Railway fare by the second class plus reservation charges for sleeper, if paid, and/or actual Bus fare from the present residence bothways by the shortest route as per University rules. No other expenses will be paid.

Those who are in service should apply through proper channel. Money Order or Cheque will not be accepted towards application fee.

Reservation: A reservation of 22½ % (15% S.C. and 7½ % S.T.) will be made in the category of non-teaching posts at entry level.

The last date for receipt of application in the Office of the Registrar (Selection Committee Section), Banaras Hindu University either by post or by hand will be **JANUARY 12, 1987.**

1. **Hindi Research Officer-cum-Editor** (One) (Department of Sociology) **Grade : Rs. 700-1600.**

Qualifications

Essentials: (1) Atleast second class Master's degree in Sociology.

(2) B.A./Shastri or equivalent examination (with Hindi and Sanskrit Literature) as main subjects.

(3) Adequate practical and creative experience of editing, writing, proof reading and printing of empirical research journal of Sociology/Social Sciences in Hindi.

(4) Capacity of writing in Hindi of original manuscripts of text books in Sociology: and

(5) Adademic experience of teaching and Hindi assistance in Sociology.

Desirable: (1) Either a Ph.D. degree or published work of equal merit.

(2) Experience and knowledge of book publication in Hindi.

(3) Some published academic and literary work preferably in Sociology.

NOTE: Those who have already applied in response to Advertisement No.9/1984-85 need not apply again.

VIDYASAGAR UNIVERSITY

MIDNAPORE, WEST BENGAL-721 101

Employment Notification No. VU/9/86

Applications are invited for the following teaching posts in the Post-Graduate Departments of the University :

A. Department	Post	Number	Specialization
1. Department of Economics with Rural Development :	Reader	One	(1) Economic Theory/Econometrics/Political Economy.
	Lecturer	Two	(1) Agricultural Economics; (2) Open, though preference will be given to the candidates with teaching/research experience in Industrial Economics.
2. Applied Mathematics with Oceanology and Computer Science :	Professor	One	Operations Research/Mathematical Programming/Optimization. Candidates with specialisation in Continuum Mechanics, Knowledge of Computer Science and experience in the use of Computer will be preferred.
	Reader	One	Fluid Dynamics/Computer Science/Dynamic Meteorology/Oceanography.

	Lecturer	Two	Any branch of Pure/Applied Mathematics, preferably with Functional Analysis/Real Analysis/Dynamic Meteorology/Computer Science/Oceanography as specialization.
3. Political Science with Rural Administration :	Professor	One	Political Sociology/Political Thought/Political Theory.
	Reader	One	Public Administration.
	Lecturer	Two	(1) Political Sociology; (2) Public Administration :
4. Anthropology with Tribal Culture :	Reader	One	Experience of conducting work in Physical/Biological Anthropology.
	Lecturer	Two	(1) Experience of conducting work in Tribal Culture; (2) Experience of conducting work in Prehistoric Archaeology.
5. Commerce with Management :	Reader	One	Farm Management and Community Development/Econometrics/Finance and Control.
	Lecturer	Two	Resource Study/Farm Management/Economic Legislations in India/Managerial Economics.
6. Library and Information Science	Reader	One	Library Automation/Survey Technique :
	Lecturer	Two	Management Techniques/Systems Analysis/Indexing/Statistical Methods.

B. Scale of Pay :	**Professor :**	Rs. 1500-2500/-
	Reader :	Rs. 1200-1900/-
	Lecturer :	Rs. 700-1600/-.

All posts carry usual allowances and benefits according to the rules of the University.

C. **Application Fee :** Applicants should enclose a Crossed Indian Postal Order of the following amount (half in the case of SC/ST candidates) Payable to 'Vidyasagar University, Midnapore'.

Professor :	Rs. 10
Reader :	Rs. 8
Lecturer :	Rs. 7

D. Requisite Qualifications

a. Lecturer

(i) A Doctorate Degree in the relevant discipline or research work of an equally high standard;

(ii) Good academic record with at least second class Master's Degree in the relevant discipline from an Indian University or an equivalent degree from a Foreign University. For A5 candidates with Master's Degree in Economics may also apply. For A6 Associateship in Documentation from INSDOC or DRTC instead of Master's Degree in the subject will be accepted.

If a candidate possessing a Doctorate Degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record with M. Phil. or exposure to research/research oriented practical/laboratory work may be given conditional appointment.

b. Reader :

(i) Good academic record with a Doctoral Degree or equivalent published work;

(ii) Evidence of being actively engaged in research or innovation in teaching methods or production of teaching materials.

(iii) About five years' experience of teaching and/or research at a University or an Institute of comparable status.

c. Professor

(i) Must be an eminent scholar with published work of high quality, evidence of being actively engaged in research in the relevant field; ten years' experience of teaching and/or research and experience of guiding research at doctoral level; or

(ii) An outstanding scholar with established reputation who has made significant contribution to knowledge in the relevant discipline.

E. The areas of specialization are not necessarily tied to the posts. The Selection Committee has a right to relax any criterion if it considers the person eminently suited for a post on the basis of other criteria. Selection of candidates may not be confined to the applicants only. Mere possession of minimum qualification and experience does not entitle a candidate to be called at the interview.

F. The University will not bear any of the expenses which a candidate may incur for appearing at the interview. Candidates already in employment should apply through proper channel. Applications giving complete bio-data and copies of appropriate documents must reach the Registrar's Office by **January 20, 1987.** The name of the post and the discipline applied for must be written on the envelope.

J. Pal Chaudhuri
REGISTRAR

ROHILKHAND UNIVERSITY

BAREILLY

No. RU/Reg/F-30/86/561-710. Dated : 18-12-1986

Applications for the following posts are invited by **28-1-1987** on the prescribed form obtainable from the Registrar, Rohilkhand University, Bareilly - 243001 U.P. by sending a self addressed envelope of 9" x 4" and crossed postal order/Bank Draft for Rs. 20/- payable to the Finance Officer, Rohilkhand University, Bareilly. Money order is not acceptable.

Sl. No.	Department	Professor	Reader	Lecturer	Qualification Master Degree.
A.	Faculty of Life Science 1. Deptt. of Plant Science	—	Two	—	M.Sc. in Botany or Plant Science in Plant Science.
B.	Faculty of Law LL.M.	One	One	One	LL.M.
C.	Faculty of Education M.Ed.	One	One	One	M.Ed.
D.	Faculty of Commerce M.B.A.	One	One	One	M.Com./M.B.A.

QUALIFICATIONS AND PAY SCALES

1. **For the Post of Lecturer (Rs. 700-1600)**

(a) A Doctorate degree or research work of an equally high standard in relevant subject.

AND

(b) Consistently good academic record with first or high second class Master's degree or an equivalent degree of a foreign University in relevant subject.

2. **For Reader (Rs. 1200 to 1900)**

(a) Good academic record with a doctorate degree or equivalent published work, and active engagement in research or innovation in teaching methods or production of teaching materials.

AND

(b) Five years experience of teaching or research, including at least three years as lecturer or in equivalent position.

3. **For Professor (Rs. 1500-2500)**

Either eminent scholar with published work of high quality and active engagement in research and ten years experience of teaching or Research and experience of guiding research at Doctorate level.

Or

Outstanding scholarship with established reputation for significant contribution to knowledge.

NOTE: Preference will be given to SC/ST and disabled candidate, if otherwise considered suitable by the Selection Committee.

Bishambhar Nath
REGISTRAR

UNIVERSITY OF JAMMU

Corrigendum

Please read "Two posts of Professor of Laws" as against one post as notified vide Notification No. : Adm/86/19350-19566 dated 10-11-1986.

K.K. Gupta
REGISTRAR

AGRA UNIVERSITY

AGRA

Advertisement No. 4/86

Applications on the prescribed form obtainable from the Assistant Registrar (Press & Publication), Agra University, Agra on a payment of Rs. 10/- at the counter and Rs. 15/- by money order, are invited for the following posts. Application complete in all respects should reach the undersigned latest by **31-1-1987** after which no application shall be entertained. The qualifications are as per the Statutes of University, a copy of which shall be supplied alongwith the application form. Grades for Professor Rs. 1500-2500, Reader 1200-1900. D.A. and other facilities as per University rules.

1. Professor in Extension Education : One
2. Reader in Foods & Nutritions : One
3. Reader in Child Development : One
4. Reader in Library Science : One
5. Reader in Zoology : One

Posts from 1 to 3 are for the Institute of Home Science of the University. The person who has applied for the posts from 2 to 5 to an earlier advertisement need not apply afresh.

S.B.B.B. Singh
REGISTRAR

THE UNIVERSITY OF KASHMIR

SRINAGAR

Corrigendum to Advertisement Notice

No. F. 10 (App-Gen) Adm.

Dated : 2-12-86

Please read 'Professor in Distance Education' in place of 'Chairman, Distance Education'.

Ghulam Ahmad Dar
ASSTT. REGISTRAR (Admn.)

TELUGU UNIVERSITY

Hyderabad - 500 004 (A.P.)

Advertisement No. 1/86

Applications in the prescribed form are invited for the following posts in the University Service so as to reach the undersigned on or before-**12-1-1987.**

Posts

S. No.	Department	Professor	Reader	Lecturer
A.	**Hyderabad Headquarters**			
i.	Department of Lexicography	1	1	2
ii.	Department of Language Planning and Modernisation	—	1	1
iii.	Department of Music	—	1	3
iv.	Department of Dance	—	1	2
v.	Department of Folk Arts	—	—	2
vi.	Department of Painting and Sculpture	—	1	2
vii.	Department of Jyotisha	1	1	2
B.	**Rajahmundry Campus**			
i.	Department of Devotional and Lyrical Poetry	—	1	2
ii.	Department of Folk and Tribal Lore	1	1	1
C.	**Srisailam Campus**			
i.	Department of History and Culture of Telugu Speaking People	1	1	2
ii.	Department of Epigraphy and Written Records	—	1	2
iii.	Department of Archaeology and Architecture	1	1	1

1. Project Assistants—22—2 in each of the above departments except the Department of Jyotisha.
3. Project Assistants—2 in International Telugu Centre at Hyderabad.
4. Compiling Assistants—2 in Centre for Preparation of Encyclopaedia at Hyderabad.
5. Assistant Librarians— 3 one each at Hyderabad, Srisailam and Rajahmundry.
6. Lecturer in English—1 | both at Hyderabad
7. Lecturer in Sanskrit–1 |

Scale of Pay

1. Professor: 1500-60-1800-100-2000-125/2-2500
2. Reader: 1200-50-1300-60-1900
3. Lecturer & Asstt. Librarian: 700-40-1100-50-1600
4. Project Assistants/Compiling Assistants: Rs. 1000 (Consolidated) per month

Age

1. Professor: Should have completed 40 years.
2. Reader: Should have completed 35 years.
3. Lecturer & Asstt. Librarian: Should not have completed 35 years.
4. Project Assistants and Compiling Assistants: Should not have completed 30 years.

Note: (i) All posts are temporary and likely to be made permanent. (ii) The Project Assistants/Compiling Assistants are temporary for a period not exceeding 24 months. (iii) The University reserves the right to fill or not to fill up any of the posts advertised. (iv) Relaxation in age to the extent of (5) years shall be granted to the candidates belonging to S.Cs., S.Ts., and B.Cs. (v) Reservations are made for the candidates belonging to S.Cs., S.Ts., and B.Cs., as per Government Rules.

Application forms together with the qualifications prescribed for the posts can be had from the Registrar, Telugu University, Kala Bhavan, Saifabad, Hyderabad-500 004 on payment of Rs. 5.00 by Demand Draft payable to the Registrar, Telugu University. If application forms are required to be sent by post, a self addressed and stamped (with postage stamps worth Rs. 1.10) envelope of 26 cms × 12 cms shall also be enclosed to the demand draft.

T.D. Prasada Rao
REGISTRAR

ANDHRA PRADESH AGRICULTURAL UNIVERSITY

Administrative Office 'Rajendranagar' Hyderabad

Advertisement No. 6/86 **Dated : 20-12-1986.**

Applications are invited from eligible candidates for recruitment to the following posts in this University.

The last date for receipt of filled in application is **20-1-1987.**

Subject	Professor cadre Rs. 1500-2500 (U.G.C. Scale)	Assoc. Prof. cadre Rs. 1200-1900 (U.G.C. Scale)	Instructor cadre Rs. 750-1300 for Agriculture Rs. 800-1450 for Veterinary Faculty (State Govt. Scale)
A. Faculty of Agriculture			
1. Agril. Engineering	1	1	1
2. Plant Breeding	—	2	1
3. Entomology	—	1	1
4. Soil Science & Agril. Chemistry	—	1	—
5. Plant Pathology	—	1	—
6. Horticulture	—	3	1
7. Plant Physiology	—	1	—
8. Mathematics	—	1	—
9. Agronomy	—	1	1
10. Extension Education	—	1	1
B. Faculty of Veterinary Science			
1. Dairy Technology	1	—	—
2. Veterinary Medicine	—	1	—
3. Poultry Science	—	1	2
4. Anatomy	—	1	1
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6. Animal Reproduction & Gynaecology	—	—	1
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C. Faculty of Home Science			
1. Home Management	1	1	—
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Veterinary Science

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"If a candidate belonging to the particular group of Backward class for which the post is reserved is not available, candiates belonging to next group of B.C. in the rotation will be considered.

Applicants other than Scheduled caste and Scheduled tribe will appear for the interview at their own cost.

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K.M. Azam
REGISTRAR

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(6) The services of the person selected and appointed against the I.C.A.R. posts will be temporary and will last only till the duration of the scheme.

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The University reserves the right to fill in or not to fill in any post and also to call any candidate for interview.

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16 Kotla Marg, New Delhi-110002 Grams: UNIBOARD. Phones: 3315105, 3313390, 3312305, 3310059 and 3312429
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

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UNIVERSITY NEWS

VOL. XXV JANUARY 12
No. 2 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor :
SUTINDER SINGH

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Futurology—21st Century

D.C. Surana*

The word 'futurology' appears to have surfaced in Germany. For the last two decades or so it has been in extensive use and has gained considerable importance. It is composed of the words future and logos and means the scientific study of the future. The forerunner akin to this, 'futurism' was a movement started by the Italian poet, Marinetti in 1909. The subscribers to it were called 'futurists'. A similar movement was started by a Russian poet in that country. The Italian movement with its manifestations like 'destroy libraries' amounting to destruction of past heritage did not appeal to the public and hence petered out by the end of the first world war. In a similar way the Russian movement which held in contempt such contemporaries as Pushkin, Dostoyevsky and Tolstoy lost its influence by 1930.

The term 'futurism' seemed to have a jinx to it. Futurology was then coined by elitists to revive interest in the projection and studies of the future. The underlying aim behind this was to prepare the masses to face the future and to avoid future shock.

We in India have our own history of 'futurology'. Mental faculties of *Rishis* which displayed the past and portrayed the future in a Micro-Macro scale in a given time frame have found mention in the Hindi Epics, Vedas, Puranas and particularly the Mahabhagwata. Did not Sukhdev Muni predict a Kaliyug after the death of Parikshat? Folklore and grandmothers' tales give us a vivid image of the concept of kaliyug and satyayug.

Futurological studies project what is in the offing by taking past and present events as a basis.

Human civilization passed through an era of agriculture in which people survived by consuming replenishable natural products which they got by their muscle power. Food and shelter seemed to have been the only need of these people and they were satisfied by the natural resources available. More hands and hence more members in the families was the philosophy of life.

Alternate occupations like crafts and skills were generated as the need for something to barter for food was felt. This was brought about by natural calamities viz. floods, famine etc. By and by concept of 'money' was developed as an improvement over barter system. With the evolution of money 'buying power of money was manifested in many forms' and greed for it developed. To cope up with the uncertainty in consumption which resulted from the increase in population, acceleration of production activity was required. Unaided production had reached a plateau. Quality consciousness gave rise to competition. All this heralded the appearance of machines on the scene. This brought about what is known to us as the Industrial Revolution where Industrial Society thrived. Enhancement of production activity led to the creation of alternate jobs and occupations. Society became classed and divided. Population increased at a

---

**Head, Department of Electronics and Communication Engineering and Head, Audio Visual Research Centre, Faculty of Engineering, University of Jodhpur, Jodhpur.*

faster rate and demand for better and still better quality increased. For the enhanced production larger and new markets had to be identified and created particularly when the demand for some reason showed a downward trend. People crossed oceans in search of markets and new resources using man, machines and money. Invasions resulted as also battles for supremacy in new areas. The Master slave distinction became a more real Reality.

By and by the importance of education and training dawned on the sons of the soil and it created in them a new awareness which resulted in freedom movements.

On the industrial front, automation was on the increase, workers had started feeling disoriented and a feeling of dissatisfaction was creeping into them. Managers emerged as tools to control this, human relation became a maze of complexities.

The unaided human minds thus far was considered to be supreme but it was soon realised that it had deficiencies and needed machine aids to exploit its faculties to a fuller extent. Thus started a new era, when the application of electronics, computers emerged to aid the human mind. The need and hunger for information was being directly felt. The developing countries are in agriculture and industrial ages but are feeling the impact of the information age. We have been invaded by the super-industrial era and the clouds of information revolution are looming large. What is going to be the shape of the future is a question which keep on flashing in our minds?

The future is the outcome of the changes that the world goes through. Some changes are internal to the system such as the socio-political ones but there are others like the scientific and technological changes which are external to the system. Change is a multidimensional entity having magnitude, direction, speed and acceleration. It could be gradual or abrupt. The future follows change, making it a multi-dimensional, multi-faceted broad spectrumed output. The gradual changes bring about a linear and controllable change in future but any abrupt change which is more a rule than an exception in recent times brings about an upheaval of quantum jump in future, which cannot be visualised simply on the basis of past trends. It is, therefore, imperative that the civilization should prepare itself to face future shock for which, ways and means must be found to anticipate it. Depending on external and internal changes one can predict various alternatives and facets of the future. Some of them may not be physically realisable and can therefore be ruled out. The remaining ones are the probable futures. Out of these probable futures, if we have a choice of a preferred future, appropriate action has to be taken right away to attain the preferred future. But do we have an inkling or an idea of a preferred future? The preferred future varies from country to country, people to people. However, some commonalities can emerge if the peoples converge to common goals. At least these studies can prepare the civilization to bear the shock if the preferred future is unattained. In fact the study can help to make contingency plans for several diverse situations.

The straight line method/trend analysis and extrapolation is suitable for short range forecasting. But for long range forecast it is unsuitable, for the change within that long period may have gone through a quantum jump. The rate of obsolescence is high and the period is now less than five years which is going further down. For long term prediction, the scenario approach based on the Delhi techniques are used. The Delphi technique involves the pooling of experts and suffers from two deficiencies as practised. The original formulation of questions can be very ambiguous and may bias the results, while the experts often fail to be experts, or if knowledgeable are experts in current technology only and not in its future potential.

Another method which is known as the Science fiction method may be characterised as individual forecasting with relaxation of one or more known scientific constraints. This technique has not succeeded, and its lack of success may be partly due to the fact that forecasts are based upon preconceived goals rather than technological opportunities. It must also be due to the wide variability of such forecasts, which nullifies their value except in a post hoc analysis.

The third method is goal seeking definitions of the future, based upon deliberate positive or negative actions. Such normative forecasts seem most attractive for the medium term, since they take into account positive external interaction which will affect the course of the technology. They may also make use of extrapolation and scenario techniques. Despite these there have been failures.

When Thomas Edison announced his incandescent lamp, a committee of the British Parliament reported that Edison's idea was unworthy of any attention or of any practical scientific use. Aeroplane, the Telephone, the Space Rocket, the Atomic Bomb, the Computer, Radio and Television all had to go through similar derision and the derision usually came from the individual experts or committee of experts constituted to aluate their possibilities to be converted into a rea- y. In 1956, leading astronomer announced that 'space avel is utter bilge' though later the same person be- me a leading member of a committee formed by the itish Government on space. The idea of V2 rockets d even public broadcastings too faced similar dis- lief.

As pointed out by Arthur Clark, a renowned science tion writer, such blunders have occurred on account one or more of the following reasons:

1. The failure of anticipation and imagination;
2. Nervousness to believe;
3. Surprise elements in technological advances;
4. Failure to appreciate the time lag between the invention, adoption and acceptance of technology;
5. The complexities of laws and politics;
6. The vested interests;
7. Assessment of markets; and
8. Capital requirements.

Non-the-less what is in store for us in the future ould be an interesting study as that helps us to make everal contingency plans to combat the future if it omes in one way or the other. It is all the more rele- ant at the present juncture when we are only 14 years way from the 21st Century.

At the present moment, we are going through rapid changes in technologies namely; electronics, the com- uter and communications. These technological ad- ances are knocking at the doors of civilizations o go all tele. The tele-communication and computers are ushering in an era which has revolutionised the entire world and civilization. We will soon have a tele-society. Every household in a city would have optical cables like the electrical points provided n every room to-day. The houses would have new architecture to work as office-cum-work places with hree dimensional video screens. All work would be done from home. A city with such households is conceptualized as 'wired city'. It would be a pollution free, noise free, having no law and order problems. People would spend their time in creative cultural activities and health clubs.

The society would be chequeless and cashless as the bank transactions would be done by terminals provided in the super-markets, stores, restaurants, household factories and even on roads and streets which would do transactions without the exchange of cash. This is popularly called EFT—Electronic Fund Transfer. Text would be projected on the computer screens connected through tele-communication satellites world over which will facilitate tele-education, tele-conferences, electronic mail and so on and so forth. The dial up video services like telephone dialing would provide lectures and lessons from any teacher situated anywhere in the world. The papers and files would be replaced by electronic memories gigantic in capacity and micro in size.

The work in the factories will be carried out by the robots, controlled and programmed by the home computers through tele-communication, there will hardly be any manual work left in the factories, the owners of the enterprises will be able to keep the factories running 24 hours in a day through the Information Manager. These will come to be known as programmable micro-industries replacing the "huge factory complex" concept of today. Tele-communication would be used in medicine for pre-diagnosis and even for complete diagnosis. Doctor and patient will be connected by tele-communication and video screens. There will be two way TV communication. All mobile vehicles will have a widespread use of telephone with the facility to receive voices for prevention of accidents, assuring safety, parking, route finding etc. The libraries would be accessible through the TV screen. A new culture of tele-banking, tele-shopping, tele-processing, tele-education, tele-conference, tele-diagnosis is in store for us.

Scientific laboratories and industries would be set up in space. Solar cell fields would be located in space to receive sun light round the clock which would be converted into electrical power to be transported to the earth. Several industrial and research activities would be started in space by establishing suitable industrial and research complexes in orbit. For sparce raw materials, mining activities would be taken up on various planets particularly the moon. The environment in space is highly suitable for certain manufacturing activities requiring either vacuum or low/high temperatures and combination of both. Such environment is abundantly available in space.

I have already brought out the possibilities of robots taking over all manual work. This would further be enhanced by injection of artificial intelligence but some

(*Continued on page 6*)

University Degrees and the Employment Market

S.M. Israney*

University examinations render a service to employers by grading and labelling the new entrants to the work force. Employers often assume that a good degree provides the best guarantee they can get both of competence in the subject matter of vocational disciplines, such as, science and technology, and of intelligence and application. University degree is therefore a barometer on which they, rightly or wrongly, measure the general suitability of a candidate to a particular job. This also reduces their own expenditure on selection procedures to the cost of more or less elaborate interviewing process. This raises the question of the extent to which the universities must take into account the needs of employers in working its system of student appraisal.

In foreign universities employers supply their requirements to the Universities or even Colleges, and more often than not, as soon as the results are out, students securing highest marks, are invited to prestigious positions.

So far as our universities are concerned, this is not so common. The little empirical evidence that exists about employer's needs and tastes for different types of educated manpower reflects employer's views on the value of attending a university as well as on success in examinations. However, it may be helpful to understand the nature of such a relationship.

The value which employers place on a qualification shows up in two ways. In choosing between applicants for a particular job, the selectors may appoint an applicant who has one particular qualification in preference to others who do not; and again, where employees have a range of qualifications, there may be a salary differential in favour of those with particular qualifications, if it is felt that these employees have a higher productivity.

Official bodies, in their attempt to draw impartially on the national pool of ability, usually specify minimum qualifications for the posts they advertise. Thus the stipulation that Bank Officers should have a first or second class degree provides an impartial indication that they are competent in the skill for which they will probably be working. The requirement for a sim lar class of degree (in any subject) for admission to th IFS or IAS by the 'interview method' shows that th degree examination is used as a favourably acceptabl measure of intelligence and ability. Again, a good degre (usually a First or High Second) is required for th postgraduate research studentship, or even for teaching, by the UGC.

Officials make use of examination results becaus it has to be seen to be impartial. Private industry on the other hand, does not have to meet this condition. Moreover, it was started off by men with capital and entrepreneurial initiative but not necessarily with education. Although businessmen now accept the role of graduates in their research and development activities, some of them still prefer, where possible, to employ men who have acquired their knowledge of industry 'the hard way'—by experience and perhaps study in their 'leisure time'.

Some surveys that have been conducted in foreign countries in this respect have revealed that 'arts graduates are taken on to ensure the flow of intellect and quality in the organisation'. Further 'except for a very important minority of firms interested mainly in scientists and technologists, the academic calibre (of graduates) sought was not exacting'.

This 'anti-academic' bias on the part of industrialists, can be attributed partly to the fact that it was personal qualities rather than paper qualification that seemed to engage the attention of directors and others concerned with graduate recruitment. It is my considered opinion that industry does not rely heavily on the present grading system for degree examination and might not react infavourably to a change in universities' techniques of student assessment, or even delinking of degrees from jobs.

There is another aspect of degrees which has been brought into active discussion by the emphasis put by the New Education Policy (NEP) on non-formal education. Unfortunately not much thought has been given to the fact that introduction of non-formal education will create further gap between formal and non-formal. Already in the employment market, candidates from correspondence courses are less preferred than the candidates through regular colleges. The policy makers

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**Reader, Economics of Education, Department of Economics, University of Bombay, Bombay.*

have not made the distinction status clear between formal and non-formal education.

Recently the author conducted a survey on a very small scale (40 companies in Bombay) to know the attitudes of some important companies with regard to their recruitment policies. The findings were as under: 9 percent preferred to recruit Arts graduates with first class degree, 23 per cent those with firsts and seconds, and 12 percent those with seconds. 30 percent had no particular preference, 10 per cent did not answer the question, and the remaining 16 per cent favoured second or third class Honours. As regards the information about academic subject, a personnel manager in a major engineering firm disclosed: if the subject is one in which the firm conducts research and development, then a man with a good degree is preferred; if the subject is one which is used in production, sales and allied departments, and for which extra training has to be given in the firm, then a man with a poor degree can be used to good effect. As to the need for grading of degrees, it is useful to identify the very good and the very poor candidates of the undergraduate population but that there was little to choose between the mass of graduates in the middle.

In support of the contention that the employers are not wedded irrevocably to the present grading system, it was pointed out that the industry did require a clear picture of a graduate's standard, but was perfectly willing to accept the suggestion that a list of marks obtained in each examination paper should replace the present single overall figure for degree 'class'.

A more objective guide to the value employers set on graduates is the salary they pay them. Private bodies tend to pay according to qualifications, because of a personal relationship between qualifications and work-performance and in the attempt to pay salaries competitive enough to attract graduates. The influence of market forces is also apparent, however, since graduates are paid better than their colleagues from training institutions. In the government offices where there are stipulated pay scales, degrees hardly make a a difference in salary, except probably in promoting persons to gazetted officers' post. In case of scheduled castes/backward classes, these considerations are not there at all. In banks, however, there is a slight difference between graduates, postgraduates and non-graduates maintained through marginal increments in their salaries.

However, we know little about earnings differential between graduates and non-graduates in the labour force as a whoe. The Americans, whose population census, unlike ours, includes a question on income as well as on terminal education age, have led the field in the 'economics of education' by showing that average earnings increase with terminal education age. A drawback to this approach is that access to education may reflect a privileged family background that would in any case lead to a good job. The contribution of social factors of this sort is supported by the wide income differentials based on caste, colour and creed with the same terminal education age. In USA there is greater effect of education on 'white' than on 'others' income. This proviso applies also to the UK studies

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of the relationship between qualification and earnings. In the UK also, studies of graduate earnings have usually been conducted without reference to the earnings of non-graduates.

The differential earnings between graduate and the population as a whole would have been much greater if the mean age of the graduates had been as high as that of the labour force. But lot of research is to be done on this subject.

Returning to the question of the value placed by employers, for whatever reason, on the possession of a university degree, studies show that corporate members of (each of) the Institution of Civil, Mechanical, Electrical and Chemical Engineers who had a university degree were better paid than non-graduates. Roughly speaking, at the age of 35-39 the medium income of graduates (about 2000) was Rs. 500 greater than that of non-graduates, while at the age of 53-59 the differential was Rs. 800. However, a systematic research work is required to be done on this subject also.

The preceding paragraph shows that little is known about the detailed pattern of utilization of educated manpower in India. The situation can be somewhat improved at the national level if the returns from the population census of 1981 are analysed and questions are asked on both 'occupation' and 'education'. A much finer analysis of the relationship between the two categories (including details of the level of degree obtained) and between these characteristics and others such as age and salary could also be an interesting subject for research.

In conclusion, it appears that successful completion of a university course is a valuable bargaining price in the employment market—a finding which emphasizes the need to award the degree equitably at the pass/fail barrier. Certain official bodies place heavy reliance on the class of degree awarded, and any modifications of the pattern of grades emerging from the universities would have to be justified theoretically to them. On the other hand, they would not object to an empirically substantiated improvement in the examination system; a movement towards continuous assessment, for example, or assessment of several different kinds.

There is again no reason to suppose that industry would object to any revision of examination structure (even delinking of degrees from jobs) that is aimed at better assessment of students, or indeed at better education and much the same standard of assessment. We must realise, however, that employers have their own problems and that the driving force for reform will have to come from within the educational system. ☐

Futurology — 21st Century

(Continued from page 3)

day it may become feasible to inject artificial emotions in a robot which would in turn give rise to three new classes of humans:

1. The natural person;
2. The artificial person; and
3. The hand-made person.

Would we like to do it? This is a choice best left to social scientists. The socio-political and economic aspects of the tele-world as has been described is for these people to come out with.

This what appears to be the future of civilization due to the impact of communication technologies. There is a tremendous gap between the advanced nations of the world and the developing nations. However, it is quite possible that with tele-communications, people will come closer and the changes world over would be brought sooner rather than later.

In the Indian sub-continent, we have co-existence of agriculture and industrial revolutions. The sub-continent is also buzzing with the onslaught of the information movement. A country of our size, dimension, complexities and resources cannot afford to delay the arrival of information society. This country with a large population needs the computer and tele-communication, the two agents of information society, more than any other society in the world. The statement could be contested by many but how else can we cater to the needs of so many in the given time-frame? We are lagging behind in technology and if we have to enter the year 2000 A.D. on equal terms with the developed societies of the world then we have to bring about in the last 14 years of this century a growth which has to be at a rate three times faster than the industrialised countries of the world. This, therefore, is the task before the Government and the people of this country. We have to achieve a rate of change three times greater than others. Is it possible to do so? Yes, provided we learn to respect and value time and treat it as the essence of our philosophy. ☐

Values & Modernity

Prof. K. Satchidananda Murty, Vice-Chairman, University Grants Commission delivered the Fiftyninth Convocation address of the Andhra University, Waltair on 15 November, 1986.

Excerpts from Prof. Satchidananda Murty's address are reproduced below:

Convocation

If we want our universities to produce excellent creative work of the highest order, it is necessary to transform our society. For that, as the Chinese philosophers whom Han Suyin met as far back as in 1966 said, "a change of thinking in the people" is necessary because it only "could propel advance: A transformation of ideas and habits and behaviour before a change in the material conditions of living could occur". (*My House has two Doors*, London, 1980, p. 419). Prime Minister Ryzkhov of USSR recently asserted "intellectual stagnation inevitably breeds stagnation in deeds." while Secretary General Gorbachev declared that "improvement of social relations, a change of mentality, the forging of a new psychology" are needed and "inertia in thinking" must end to make people devote themselves totally to their occupations. (*Vide* their reports to the 27th Congress of the CPSU). This is confirmed by Everett Hagen's theory that "a change in social structure leading to change in personality" is "the prime mover in social change". (*On The Theory of Social Change*, 1962, p. 237. For almost the same view, David Meclelland, *The Achieving Society*, 1961). This means social, cultural and psychological correlates must have precedence.

It is in this context that we have reason for optimism as our Prime Minister has realized that "our final objective is the transformation of the total political, economic and social environment, to be able to achieve transformation of minds and spirits which would be real transformation of India". (His Bombay speech of December 29, 1985, reported in *The Hindu*, Dec. 30, 1985). The strategy for motivating people to change their social and work psychology, Gorbachev thought, is to remove their grievances and improve their living and working conditions. (*op. cit.*). Towards this end he emphasized family integrity, ethics and values. Psychological satisfaction and moral incentives thus gain importance. Interestingly, we find that in US also in this month's US congressional and state elections 'the politics of values" is playing an important part, because many Democrats and Republicans are searching for "ways to inject values in public debate". Thus in our country and elsewhere the question is: how to encourage people to live by certain norms? What can government do in this regard, and is it possible for schools and colleges to inculcate students with values that all citizens share?

It is to be noted that in the industrially developed countries, e.g. USA, USSR and Britain, leaders are talking of the importance of "strengthening the family", "regenerating the family" and "a strong family structure" respectively. "Return to traditional values" or "return to the values of an older era before the dawn of the permissive age" are the phrases frequently heard in USA and Britain. "The new education system would seek to reinforce the country's old values", declared our Prime Minister. (*vide* His speech at Delhi on June 26, 1986 reported in *The Times of India*, June 27, 1986).

According of the "highest priority to development human resources", (2) the creation of a ministry for it "to strike a balance" between developmental needs and maintenance of "old values" as well as to promote "high values" among the masses, and (3) the choosing of a person with experience, scholarship and vision to head that ministry, have been commendable important decision taken by Shri Rajiv Gandhi. But unless powers and finances commensurate with the objectives set for it are given to this ministry, it may not accomplish what is expected of it.

I do not know what were the "old values" the Prime Minister had in mind when he spoke several times about their maintenance in conjunction with development and modernization. But we may hearken to some great Indologists who have scientifically studied Indian Culture and identified what they thought were its values.

In 1942 Franklin Edgerton considered the proper and balanced cultivation of "social propriety, worldly advantage and love" to be the ordinary threefold norm of

Indian culture, while knowledge of the ultimate truth is its extraordinary norm. According to him, "a very important feature of Hindu practical morality" is the doctrine of ahimsa (no injury) to any living being, a logical deduction (he argued) from the Upanishadic doctrine that the real self of everyone is identical with that of the universe. (his article in *Journal of the American Oriental Society*, Vol. 62, 1942).

In 1961 W. Norman Brown suggested that Duty, the unusual stress put on correct action, or correct or right behaviour, might be the vitalizing or determining element in Indian civilization which from the third millennium B.C. to the present has had a continuity. Other large or basic values of Indian civilization which, wrote Brown, might have given it vitality throughout history could have been Truth, Ahimsa, and the Attitude towards Law as not made by man or by the King. (his article in *The Journal of Asian Studies*, Vol. XX, No. 4, 1961).

On the other hand, Walter Ruben "counterposed" "the always traceable progressivity as the most important cultural heritage of India as against the at least five thousand years old continuity of the tradition". (*Sanskrit Studies in GDR*, Pt. I, Berlin, 1978, p. 69).

Many of us may accept one, some or all of the values identified by the first two American scholars or the third East German scholar as our old or traditional values. It is possible that depending upon ancient Sanskrit and Tamil epics some of us may like to add to them filial piety, chastity, and fraternal-sororal affection. Gandhiji at least considered chastity to be not less important than truth and ahimsa. Or, one might argue (as I once did in a lecture at Delhi under ICPR auspices) that self-control or sense-control—*atmanigraha or indriyajaya*—is the supreme Indian value because not only the Vedantic, Buddhist and Jaina scriptures, but also our treatises on virtue, polity and eros as well as our classical medical scientists accept it as much. According to a prominent journalist, who is also a trained sociologist, who animadverted on Vedanta, "restraint" is one of the three basic principles of Gandhi's alternative civilization.

Two questions may now be raised: (1) Are any of the above exclusively Indian values? Anyone acquainted with Christian, Chinese or Japanese cultures cannot answer 'Yes'. The Gita, the Dhammapada and the two great smritis do not contain any basic ethical values or moral laws not accepted by the authors of the artha and kama sastras, or the Lokayatika brahmanas. Manu ordained:

> *"Ahimsa satyamasteyam saucamindriyanigraham,*
> *Etam samasikam dharmam—"*
>
> (X.63)

Yajnavalkya enjoined:

> *"Ahimsa satyamasteyam saucamindriyanigrahah,*
> *Danam damo dayakshantih sarvesham dharmasadhanam."*
>
> (V. 122)

As both these law-givers themselves advised, if their codes or any tradition lays down as moral law or duty what is not conducive to happiness and what is opposed to the moral consensus of mankind, it should simply be rejected. (Manu, IV. 176; Yajnavalkya, VI. 156). *Lokavidvishtam dharmyamapyacharennatu.* Similarly, as St. Thomas Aquinas pointed out, Christ himself did not give any new moral laws except those derived from human virtue. (*Summa Theologica*, I. II. Q. 108, 1. 2.) I have not the time to elaborate, but it is a fact that values such as these are not exclusively relevant to any particular society—pastoral, feudal, industrial or technological.

Let us, therefore, speak of universal ethical values instead of Western, Indian, Christian, Islamic or Hindu values. True values are neither ethnic, nor do they belong to a particular religion or age only; and it is these we ought to promote and propagate in our educational institutions. We may also remember Plato's teaching that because virtue is innate it can be fostered by education, and practised and taught by everyone according to his ability. (*Meno; Protagoras.*)

(2) It is nonsense to say, as some do, that modernization and technology would destroy all traditional values, for the real universal ones among the latter are in no way opposed to the former and as for the others the sooner they are destroyed the better. Modernization is nothing but availing of increased opportunities of systematic inquiry and subjecting our life more and more to rational examination. Did not Socrates say an unexamined life is worthless? To make reason "legislative of experience" (Kant) and to search vigorously for "irreducible and stubborn facts" (Whitehead)—this is the characteristic of science. Acquisition of a method whereby nature is mastered, dominated and moulded so that it subserves our ends is technology. It is for us to ensure that our ends are in tune with our ethical and aesthetic intuitions. Spirit should triumph over all that is non-spiritual, the body, senses, attachment and aversion, mind, and the world of things. This is the ideal of Tantra, as well as of Hatha and Raja Yogas. □

Revamping the Examination System

A UGC sponsored National Seminar on Revamping the Examination System was recently organised in collaboration with the ICSSR at Garhwal University, Srinagar.

The Seminar during the course of its ten-session deliberations covered the (i) Examination System, (ii) Comprehensive and continuous Evaluation, and (iii) Paper setting, Evaluation Technique and Conduct of Examination. Major recommendations made by the Seminar are as follows:

In place of end-of-year examination, semester system was accepted by the participants unanimously. Failure of semester system in some of the universities was attributed largely to the fact that it was copied from abroad and introduced hastily without any modifications to suit Indian conditions. An active participation and helpful cooperation of the teachers was emphasised to be a pre-condition for the success of the semester system. This calls for teachers' training in creative and scientific decision making processes, skilful designing and developing a systematic syllabus for teaching, learning and evaluation. Some of the suggestions made to make a success of the Semester System are as follows:

1. Each Semester should be designed in the context of the abilities of the examinees to be assessed which will require suitable changes in the course/curriculum contents.

2. Evaluation should be based both on internal and external examination. The internal examination should be continuous and the assessment made by the subject teachers individually or collectively.

3. Marks obtained in the internal and external examinations should be shown separately in the final marksheet certificate.

4. To minimise the subjectivity in internal evaluation as also to maximise its reliability and validity, internal assessment should be periodic and open.

5. A time bound programme of action for the semester should be made available to the students at the beginning of the semester. It should clearly indicate the topics of the essays, discussions and home assignments and should include reading lists, schedule of periodic tests, examination and declaration of results etc.

6. To make the teaching more creative and conducive to student—learning and to motivate students to study subjects not included in the written external examination, the following ways and means were suggested for the continuous internal assessment of the student:

(a) **Quizzes :** These can be used by the subject teacher at the end of each unit of study. But students must be informed at the start of the session about the scheduled/unscheduled number of quizzes. This was recommended for both graduate and postgraduate students.

(b) **Written and Oral Tests :** (Objective short answer, long answer and problem solving) : Greater reliance be placed on objective and short type questions than on the essay type examination. Scientifically structured oral tests should be used to evaluate the reasoning, comprehension, power of expression, presence of mind and command over the language. To reduce subjectivity, oral tests should be given by a board rather than by an individual examiner. Two or three essay type tests should also be conducted during the semester to judge the sequential and thoughtful presentation of ideas in fluent language.

(c) **Assignments :** Home, class and library assignments should be given to students to develop their qualities of self-study, confidence, library consultation etc. A list of reference material and topics of assignments should however been made available to students at the beginning.

(d) **Laboratory/Field/Practical/Project Work :** These tasks may be assigned to groups or individuals to develop their abilities of analyses, syntheses, evaluation, decision making, modification, creativity and original thinking, knowledge of instruments and their handling, and report writing etc.

(e) **Term Paper / Dissertation / Thesis :** To develop coherent writing, and expose the students to simple research techniques and report writing, these tasks should be introduced at the postgraduate level. It is important that last date of submission of the term paper etc. is fixed well ahead the external examinations, so that the teacher has sufficient time to evaluate, add comments and return them to students before the end-of-course examination.

(f) **Tutorials/Groups Discussions/ Seminars :** These are useful to train students in developing their abilities to think logically and solve problems, express their understanding, contradict opposing ideas and support their views. These are useful in assessing the qualities of initiative, free expression, originality in thinking and communication skills. Tutotrial time of one hour for every unit of study and monthly group discussions based on preassigned topics and problems should be arranged. Seminar may be held twice a year. Marks should be given for each activity to the students on the basis of their level of participation in the discussions and presentation of paper, etc.

7. The ratio of internal and external assessments should be 25 : 75 at the beginning which may be changed to 50 : 50 later on according to the level of success achieved.

8. An Examination-Evaluation Reform Unit should be set up in every university for careful analyses and investigations on different constituents of examinations i.e. reliability and validity of the system, to prepare various types of test material techniques of evaluations, pre-admission test for different courses, methods to be used for continuous internal assessment, to find out the grievances, if any, in the internal evaluation procedure etc.

9. As the work-load of a teacher will increase due to continuous evaluation, the teacher-pupil ratio should not be more than 1 : 10.

10. A trimester system should be adopted at school level as the younger children are motivated more if they have to work with short level goals.

11. To achieve the target teaching and learning, a clear cut blueprint of questions in all the subjects at graduate and postgraduate levels should be prepared well before the examinations. The same should be provided to the examiners with the instructions that they should set the question papers from the blue-print only.

12. At present papers usually contain a set of stereotyped questions which encouraged selective study and rote learning. Objective and short answer type questions should also be added in the question papers. The weightage may be distributed as 40% essay type and 30% each for short answer and objective type questions.

13. A detailed marking design should be provided by the paper setter to the co-examiners for their classification about different aspects of the expected answers. This will lead to greater uniformity among different examiners.

14. It was also proposed that an internal teacher (who is teaching the subject) and an external teacher (who does not belong to the same university) should set the question paper. Similarly the moderation of different papers should be done by various specialised committees each consisting of an external and an internal faculty member.

15. The system of grading is scientifically more justifiable than the present marking system. The achievement by the students may be reported on a seven point scale. Separate grades should be given for each subject.

16. To maximise the target teaching and learning in each subject question papers should be framed in different units according to curriculum. If options are to be given they should be within the particular unit. The number of optional questions should be reduced to a minimum.

17. Students should know quite explicitly the nature of examination, the number and type of questions which are to be answered and the aims and objectives of the examination etc. Thus, the need to develop a right type of examination culture was strongly felt by the participants.

18. Centralised evaluation may be adopted as a general practice by all examining bodies. Sufficient time should be given (not more than 50 answer books per day) to the examiners for justified evaluation.

19. To equalise the inter and intra-examiner variations in marking standardization of marks obtained by the students was suggested. After standardization of raw marks obtained by

the students in different subjects, the introduction of grading system will be greatly helpful in removing the imbalances between different subjects or papers of a particular semester.

20. The National Policy on Education 1986 had pointed out that the feasibility of open book examination system at university level be considered. The delegates discussed the topic in depth and the following conclusions were reached:

(a) Although open book examination system contains many advantages i.e. exploring relevant materials from books, eliminating chance element, discouraging rote memorization, ensuring furthering of competencies of referencing or consulting books, helping to reduce malpractices associated with the examination hall etc., yet it can be used only in a smaller groups of students. The larger the group the more difficult it is to administer this system.

(b) The applicability is not universal to all subjects as some subjects are not amenable to this system at all.

(c) This system requires a rich textbook library otherwise the students will be encouraged to use substandard books. Moreover due to inadequate library facilities, particularly because of the rise in the cost of books, the performance of a student in such examination would be a product of institutional provisions rather than an individual's potential.

(d) According to the pattern of question papers in the open-book examination system, several authors, for monetary gain, would like to write substandard books/guides.

21. In case the division pattern is to be retained in the universities, whether at the pass-fail or at different divisional levels, should re-examine independently these students. The students whose marks get increased as a result of the process should be given an aggregate weightage in the marksheet and their result should be declared accordingly.

22. To introduce and to develop the basic skills of training needed for paper setting, evaluation of answer books, framing the question bank etc., a training programme should be started by the universities under the supervision of examination reform unit of the university.

23. There is a strong need of establishing a national level agency to conduct tests on voluntary basis and determine the suitability of the students for specific jobs. It will certainly be helpful in maintaining all India character and quality of pupils for different courses of studies. For this, a nation level pre-admission test should be conducted on the basis of National Testing Service Scheme.

24. The establishment of Public Examination Service Commission in each State for conducting examinations or interviews for recruitment and promotion of college and university teachers, was also recommended. Examination results should be declared within 45 days after the last date of the final examination. It has been revealed by the psychologists that the students get encouragement when the results are declared immediately after the examination.

25. The re-evaluation of answer-books should be abolished so that the process of admission may be completed as scheduled and sufficient time is left for teaching-learning activities. □

YOJANA

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International Workshop for Women Administrators

SNDT Women's University organised, in collaboration with the Association of Commonwealth Universities (ACU) and the Canadian International Development Agency (CIDA), an International Workshop for Administrators in Higher Education in November 1986. The objectives of the fourteen-day residential workshop were to provide women in key positions in universities or with the potential to reach such positions with an opportunity :

- to acquire and enchance skills which will facilitate their personal growth and development, and strengthen capacities to perform successfully at senior levels;
- to strengthen selected management skills that are required in the academic environment; and
- to analyse the organisational environment of the university system.

The ACU and SNDT jointly selected institutions from Malaysia, Sri Lanka, Bangla Desh and India. Institutions were selected to provide broad geographical representation. 30 participants representing these institutions were selected for the workshop.

Five Trainers were invited by ACU to lead the workshop. Two were from U.K., one from Canada and two from India of whom one was from SNDT. In keeping with the content and the objectives, the experiential mode of learning was used throughout the workshop. There was a formal mid-workshop evaluation and at the end of the workshop final evaluation. The evaluation showed that the participants were very positive in their reaction to the workshop and they appreciated the clarity of the workshop's objectives, its coherence, sequence and flow of activities. The content of the workshop was liked both for its interest and relevance and among the items which participants particularly found of value were personal awareness, team work, planning and organising, time management and budgeting. Many participants felt that they had grown personally during the course and commented favourably on the teaching/learning methods, sustained growth and interest as well as facilitated interaction. The extensive teaching materials were also appreciated.

Several participants recommended that this workshop should be followed by regional workshops in India and other participating countries.

Call for Tagore Studies

In comemoration of the 125th birth anniversary of Rabindra Nath Tagore, Rabindra Bharati University proposes to open a new research centre on Tagore called 'Cell for Tagore Studies'. A new vista on Oriental education will be explored by the starting of 'School of Vedic Studies', according to Prof. Ramaranjan Mukherjee, Vice-Chancellor of Rabindra Bharati University. He is reported to have said that Rabindra Bharati University has suitable conditions for conducting courses on film studies and mass communication. The U.G.C. has already cleared the latter and the University was now awaiting the concurrence of the State Government.

News from Agril. Varsities

Call to Raise Farm Productivity

The agricultural scientists should work out plans which are economically and ecologically viable and also study the environmental impact of the side effect of the use of pesticides and chemicals, said Dr. Manmohan Singh, Deputy Chairman, Planning Commission. Dr. Singh was addressing the faculty and the students of the Haryana Agricultural University on the occasion of Fourth Prize Distribution Function of the College of Basic Sciences and Humanities. He said that since it was not possible to subsidise agriculture on long term basis as a matter of policy, the productivity of main crops will have to be increased by reducing wastage after crop harvesting and other means.

Dr. Manmohan Singh regretted that the benefits of green revolution have not percolated to the small and marginal farmers because of institutional constraints and the increase in production has come primarily from upper level and middle farmers. He, therefore, urged the scientists to devise ways and means so that the benefits of technology percolate down to small farmers without which the poverty cannot be abolished. The productivity of water use has to be much higher than so far and gaps in the institutional structure will have to be filled. The irrigation plans have now started giving diminishing returns. Proper water and land use plans will have to be evolved by the scientists commensurate with the costs involved, he added

He called upon the agricultural scientists and the administrators to take lead in formulating perspective plans so as to ensure that the problems of rising and increased population are squarely met. The sicentists should contribute to inculcating scientific temper and help in harnessing the science and technology to the economic development of the country and the welfare of the common man. Since the demand for foodgrains in the country is likely to increase, the country must produce more than 250 million tonnes of foodgrains to feed the population by the year 2000. Dr. Manmohan Singh paid rich tributes to the contribution made by the scientists towards prosperity of Haryana and the progress made by the University.

Earlier, welcoming the chief guest, the Vice-Chancellor, Mr. L.D. Kataria underlined the use of basic sciences in the research programmes of the University.

Non-traditional Pulses

The School of Genetics, Tamil Nadu Agricultural University, (TNAU), Coimbatore has developed three elite lines in non-traditional pulses, namely, beans (Phaseolus vulgaris L.), lima beans (Phaseolus limensis L.) and sword beans (Canavalia gladiada Jacq. DC).

Beans, commonly known as French beans are generally cultivated in higher altitudes during cold winter season. The cultures now identified are found to come up well in Coimbatore Campus and are in multilocation trials for ascertaining the performance of PDR-20 and PDR.-7, developed from the materials received from Kanpur. The crop matures in 70 to 80 days, yielding 5000 kg/ha of tender pods as vegetable and an average of 900 kg. grains/ha. This is suited for cultivation in gardenlands under irrigated conditions during September-October.

Lima beans, native of South America, originally found to be creepers were subjected to selection and induced mutant of gamma rays was obtained from the University of Agricultural Sciences, Bangalore in 1980. A pure-line selection made out of this material was found to mature in 70 days. It comes up well in all seasons with protective irrigation and yields 600 to 800 kg. of grain per hectare. The seeds extracted from green pods when 3/4th ripe can be used as vegetable. The grains collected from ripe pods can be used as pulse either as a whole or split dhal. Though it comes up throughout the year, the best sowing time is September-October for rainfed crop and January-February for irrigated crop.

Sword bean was developed from a few seeds obtained from the University of Agricultural Sciences, Bangalore in 1980 as a pur line selection. It matures in 110 to 120 days. The plant type is erect, bushyd photoinsensitive and comes up well as a dryland crop. It has performed well in the drought prone areas of Ramanathapuram and Tirunelveli districts. It also responds well for irrigation.

Tender pods are ready for harvest from 75 days after sowing and suited for consumption as vegetable. The seeds can be used only as a poultry feed as it is not palatable for human consumption. A single plant is capable of bearing 15 to 45 fruits, each weighing about 200 gm. It produces around 2 to 6 kg. of tender pods as vegetable per plant. For consumption as vegetable, it is advisable to decant the water after cooking so that the toxic principle like *Canavalin* could be removed. Afterwards, the vegetable could be made more palatable and acceptable by dressing with coconut flakes. All these less-known pulses are photoinsensitive.

News from UGC

INSAT-1B Programme of UGC

Between 16th & 31st January, 1987 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

16-1-87

"Group Theory"
"Nuclear Magnetic Resonance-I"
"More Wheat"

17-1-87 (Saturday)

No Telecast

18-1-87 (Sunday)

No Telecast

19-1-87

"A Non-Euclidean Universe"
"Star Wars"
"Unravelling the Past-Chemistry Help in Archaeology"

20-1-87

"OIL: From Small Beginnings"
"Peasant Life in India"
"Village Water Supply"

21-1-87

"Mister Klein Looks at Geometry"
"Sequential Circuits"
"Refrigeration & Air Conditioning"

22-1-87

"Advance Organiser Model"
"Astronomy Before Technology —Towers to Heaven"
"Road to Stars"

23-1-87

"The Fundamental Theorem"
"Nuclear Magnetic Resonance-II"
"Gas Chromatography"

24-1-87

"Language of Music"
"Art Appreciation—Enjoying Painting"
"Literature and Life"

25-1-87 (Sunday)

No Telecast

26-1-87

No Telecast

27-1-87

No Telecast

28-1-87

"Maths: A Psychological Perspective"
"Heads or Tails"
"Liquid Gold"

29-1-87

"Concept Attainment Model: Reception Oriented"
"Astronomy Before Technology: The Music of the Spheres"
"Fertilizer, Fertilizer, Fertilizer"

30-1-87

"Mathematics: A Social Perspective"
"Seeing is Believing"
"Conserve Energy"

31-1-87

"The Art of the Composer"
"Dance of Siva"

Post-Doctoral Fellowships in France

The University Grants Commission (UGC) has invited nominations from the universities for the award of Post-doctoral fellowships for advance study and research in the Universities of France.

The fellowships, of one year duration under Indo-French Cultural Exchange Programme, are in the fields of : (1) Public Administration, (2) Sociology of Education, (3) Urban Planning, and (4) Quantitative Methods and will be awarded to the teachers in universities and colleges. The selected teachers will be provided air fare both ways and suitable maintenance allowance by the Government of France.

The last date for the receipt of applications, through the candidates' universities, by the UGC is January 31, 1987.

News from Abroad

ORS Awards 1987

The Committee of Vice-Chancellors and Principals of Universities of United Kingdom (CVCP) has offered some 800 new ORS Awards on a competitive basis in 1987 to overseas postgraduate students of outstanding merit and research potential. Each award will cover the difference between the tuition fee for home postgraduate student and the 'Full-cost' fee chargeable to an overseas postgraduate student. Overseas research students awards tenable at any academic institution in the United Kingdom will be made to overseas graduate students who in session 1987-88 are commencing full time study, as registered research students, at one of the academic institutions for a higher degree, or are already undertaking such a course and do not have an ORS Award. The candidates must be liable to pay tuition fees at the 'Full-cost' rate for overseas students. The only criteria for the awards are outstanding merit and research potential; other factors, such as means, nationality, proposed field and institution of study, will not be taken into account. The awards are made to individuals and not to academic institutions. They may be held in any field of study. Subject to the satisfactory progress of the Awardholder, they will be renewed for a second and third year, according to the normal or remaining length of the research course being undertaken. A special committee appointed by the CVCP and comprising senior members of academic staff of the academic institutions will make the selection of Awardholders as also administer the scheme.

Further details and application forms may be obtained from the Registrar or Secretary of any of the academic institutions in U.K.

Multi-Purpose Vaccine

Australian medical researchers are reported to have successfully tested a genetically engineered vaccine which would lead to production of a single vaccine for protection against several diseases. The research, by scientists at the University of Adelaide, South Australia, shows that it is possible to produce live oral vaccine to immunise against gastroenteritis—one of the most common and debilitating illness in Third World countries and a major cause of death in children.

The gastroenterological infection is often caused by any one of a variety of organisms that are widespread in the environment. Until now, individual vaccines were needed against specific organisms. Dr. Justin La Brooy of the University's Department of Medicine, said the Adelaide experiments had already shown that a live oral vaccine could be produced to protect against cholera and typhoid.

AIU News

Modern Trends in Evaluation Methodology

A ten-day training workshop on "Modern Trends in Evaluation Methodology" for senior Naval Officers was conducted from Nov. 17-28, 1986 under the auspices of the Research Cell, Association of Indian Universities (AIU). The workshop was inaugurated by Dr. N.K. Upasani, Honorary Director, Examination Reforms Unit, S.N.D.T. Women's University. Dr. V. Natarajan, Project Director A.I.U. while welcoming the participants discussed the relevance of the workshop to naval taining courses. The workshop covered syllabus analysis, latest teaching and evaluation techniques, result analysis, computer applications, follow up techniques etc. A lead lecture was presented on each topic followed by Reading/Discussion, Assignment/Practice and Small Group problem solving.

Dr. Jagdish Narain, Secretary, AIU, in his valedictory address, stressed the need for feed-back and the scope for improvement in such training courses. Others who addressed the workshop were Dr. B.M. Shukla, former Vice-Chancellor, Gorakhpur University, Capt. Shailender Singh, Dr. Mukhopadhyay, NIEPA, Cdr. Arora, Lt. Cdr. N. Misra and the Research Cell Staff.

Sports News

Kalpana Bahutule to Lead Women Cricket Team

Kalpana Bahutule of Bombay University has been named Captain of the Indian Universities Women Cricket Team to participate in the Senior National Women Cricket Championship scheduled to begin on Jan. 15, 1987 at Hyderabad. Seema Desai of Ranchi University will be the Vice-Captain. Other members of the team are:

1. Kalpana R. Achrekar
   — Bombay Univ
2. Meenakshi Chopra
   — GNDU
3. Madhu Bhaturia
   — GNDU
4. Sabia Aftab
   — Kanpur Univ.
5. Sushila Chenayya
   — Nagpur Univ.
6. Harshvardhini Buty
   — Nagpur Univ.
7. Elizhabeth Abraham
   — Madras Univ.
8. Mary Abraham
   — Madras Univ.
9. K. Sheila
   — Madras Univ.
10. Rasia Khan
    — Madras Univ.
11. Reeta Jena
    — Ranchi Univ.
12. Purnima Janardhan
    — Osmania Univ.
13. D. Padma Reddy
    — Osmania Univ.
14. B. Sunitha
    — Osmania Univ.
15. Rita Sachdeva
    — Delhi Univ.
16. Rekha Verma
    — Panjab Univ.

The team is undergoing a coaching camp at Osmania University, Hyderabad from Jan. 5 onwards under the guidance of former Ranji Cricketer Mr. Nazmul Hussain who is presently the Cricket Coach at M.L. Sukhadia University, Udaipur.

We Congratulate . . .

(1) Dr. Gopalji Trivedi who has been appointed Vice-Chancellor of the Rajendra Agricultural University, Samastipur.

(2) Dr. Birendranath Goswami who has been appointed as Vice-Chancellor of the Vidyasagar University, Midnapore with effect from 1st January 1987.

(3) Prof. C.G.K. Ramanujam, Deptt. of Botany, P.G. College of Science, Osmania University, who has been awarded the 10th Prof. Gunnar Erdtman International Award for his significant contribution towards study of pollen grains.

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
January 15-17, 1987	Second National Conference on System Dynamics	Intended to bring together researchers and practitioners in the field of System Dynamics, managers and executives involved in long range planning activities.	Department of Mechanical Engineering, Institute of Technology, Banaras Hindu University (BHU), Varanasi.	Dr. Sushil K. Sharma Organising Secretary, Department of Mechanical Engg, Institute of Technology, BHU, Varanasi.
January 19-24, 1987	Programme on Effective Management of Change	To help the participants understand the process of Change, explore various approaches and examine their applicability in their own situation.	Indian Institute of Management, Ahmedabad.	The Programmes Officer (MDP), Indian Institute of Management, Ahmedabad.
January 24, 1987	Seminar on Economics of Industrial Development	Participants will discuss Industrial policy, Industrial finance, Foreign collaboration/Capital, Industrial marketing and capacity utilisation.	Symbiosis Society's College of Arts and Commerce, Pune.	Prof. N.B. Kangutkar Organising Secretary, C/o Symbiosis Society's College of Arts and Commerce, Senapati Bapat Road, Pune.
February 16-19, 1987	National Seminar on Crystal Growth and Characterisation of Advanced Materials for Solid State Applications	Topics to be covered are: Theoretical and Experimental aspects of crystal growth; Heat and Mass transport; Industrial Crystallisation; Rapid Solidification and Casting; Biological and Molecular Crystals; and Special Crystals—New Techniques and Instrumentation.	Crystal Growth Centre, Anna University, Madras.	Prof P. Ramasamy Convener, Third National Seminar on Crystal Growth, Crystal Growth Centre, Anna University, Madras.
March 13-14, 1987	National Symposium on Development of India's Mineral and Fuel Resources: Geological and Environmental Aspects.	To promote in-depth dialogue on the entire spectrum of the Mineral Sector involving the metallic and non-metallic minerals, coal, ground water, oil and natural gas.	Department of Applied Geology, Indian School of Mines, Dhanbad.	Prof. K.L. Rai, Convenor, DJ National Symposium, Department of Applied Geology, Indian School of Mines, Dhanbad-826004.
April 7-17, 1987	Introductory Course in Phonetics and Spoken English	To acquaint college and university teachers of English with the problems of English speech and pronunciation.	Central Institute of English and Foreign Languages, Regional Centre, Lucknow.	Prof. V.D. Singh, Course Director & Officer-in-charge, Central Institute of English and Foreign Languages, Regional Centre, Moti Mahal Campus, 2 Rana Pratap Marg, Lucknow-226001.
November 26-28, 1987	**International Seminar on Instrumental Methods of Electro-Analytical Techniques.**	**To provide a forum to research workers and practitioners for exchange of information and technical perceptions in instrumental methods of electroanalysis.**	**Indian Institute of Science, Bangalore.**	Prof. M.H. Dhananjaya, Principal and Chairman of the Organising Committee, S.J. College of Engg., Mysore.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

ADDITIONS TO AIU LIBRARY

Afanasyev, V.G. *Scientific and technological revolution : Its impact on management and education.* Moscow, Progress (c 1975) 320p.

Association of Indian Universities, Delhi. *Bibliography of doctoral dissertations 1981-82. Natural and applied sciences.* Delhi, Author (c 1986) xlv, 665p.

Chopra, S.K. ed. *Brain drain: And how to reverse it.* Delhi, Lancer, International 1986. 176p.

Coe, Sebastian. *Olympians : A quest for gold triumphs, heroes and legends.* London, Pavilion (c 1984) 168p.

Copa, George H. and Moss, Jerome, ed. *Planning and vocational education.* New York, Mc-Graw Hill (c 1983) 198p.

de Mellow, Melville, ed. and comp. *9th Asian games, Delhi 1982 : Official report.* 3V. Delhi, IX Asian Games Special Organising Committee.

Donovan, Ticky. *Winning Karate.* London, Pelham Books (c 1984) 122p.

Easterby-Smith, Mark. *Evaluation of management education, training and development.* Hants, Gower (c 1986) viii, 195p.

Ellington, Henry and Harris, Duncan, Comp. *Dictionary of instructional technology.* London, Kogan Page, 1986. 189p.

Emery, David, ed. *Who's who in international cricket.* London, Macdonald, 1984. 192p.

Fraser, Barry J. *Classroom environment.* London, Croom Helm (c 1986) 226p.

Freeman, William H. *Physicql education and sports in a changing society.* Delhi, Surjeet, 1982. 300p.

Gale, Anthony and Edwards, John A., ed. *Physiological correlates of human behaviour.* 3V. London, Academic Press, 1983.

Gurukula Kangri Vishwavidyalaya, Hardwar. *Why examination reforms?* Hardwar, Author, 1984. Discontd.

Harris, Duncan and Bell, Chris. *Evaluating and assessing for learning.* London, Kogan Page (c 1986) 179p.

India. Department of Science and Technology. *Research and development statistics, 1982-83.* Delhi, Author, 1984. v, 147p.

India. Ministry of Education and Culture. *Adult education components in the development schemes of Government of India.* Delhi, Author (c 1984) 235p.

India. Ministry of Human Resource Development. *National policy on education 1986.* Delhi, Author, 1986. 29p.

India. Ministry of Personnel and Public Grievances and Pensions. *Compendium of training programmes 1986-87.* Delhi, Author, 1986. 714p.

Jacks, Brain and Carter, Carter, Cyril A. *Novice to 1 st dan: An interpretation of the British Judo Association syllabus.* London, Pelham Books, 1984. 96p.

Karan Singh. *History of inter-university athletic meets (men) in India, 1940-41* to *1983-84*. Varanasi, Mrs. Arati Singh, 1985. xxvi, 457p.

————. *Indian Athletics year book 1984-85*. Varanasi, (Mrs.) Arati Singh, 1985. 115p.

Keegan, Desmond. *Foundations of distance education*. London, Croom Helm (c 1986) 277p.

Kothari, Sunil, ed. *Bharata Natyam: Indian classical dance art*. Bombay, MARG, 1982. 190p.

Moonis Raza and others. *Tribal literacy in India*. Delhi, N.I.E. P.A., 1985. 71p.

Mridula. *State funding of universities : A study of maintenance grants to universities*. Delhi, Association of Indian Universities, 1986. xiii, 187p.

Payne, Howard and Payne, Rosemary. *Science of track and field athletics*. London, Pelham Books (c 1981) 384p.

Purkait, B.R. *Modern education in Japan*. Ambala Cantt, Associated, 1986. 161p.

Schwartz, Leonard. *Heavyhands : The ultimate exercise*. London, Pelham (c 1982) 160p.

Widdowson, Rosalind. *Joy of yoga*. New York, Doubleday & Com. Inc., 1983. 93p.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

HUMANITIES

Philosophy

1. Dhulia, Yohan. *God-man relationship in Vaisnavism and Christianity, with special reference to Ramnuja Madhya and Saint John, Saint Paul*. Devi Ahilya.

2. Gabriele, Gastaldello. *Bhakti movement: Its aesthetic, philosophical, ethical perspectives*. BHU.

3. Gupta, Ramesh Chandra. *Tirthankar, Buddh aur avtar kee awadharna: Ek tulnatmak adhyayan*. BHU.

4. Manju Rani. *The doctrine of pratitya samutpada in Buddhist schools*. Magadh.

5. Parai, Sukla. *A critical examination of Hume's philosophy in mind*. Burdwan.

6. Ray, Pransankar. *A study of certain behavioural and personality concomitants associated with socio-economic deprivation*. Budwan.

Fine Arts

1. Krishna Rao, Attili. *Janapada rangasthala kalalu*. Andhra.

Music

1. Bechar, Anil Behari. *Matangkrit Brihaddeshee ka adhyayan* BHU.

2. Kamal Shankar. *The elephant in early Indian art from Indus Valley Civilization to A.D. 650*. BHU.

3. Nigam, Manjul. *Sangit-lipi ka vikas evam samsyayen: Ek alochnatmak adhyayan*. BHU.

Language & Literature

English

1. Banerjee, Anuradha. *Isolation and involvement in the fiction of Graham Greene*. BHU.

2. Chulki, Raghavendra Shamrao. *The image of India in the works of Philip Meadows Taylor*. Karnatak.

3. Sampath, Indira: *Social criticism in late nineteenth century British drama with special reference to Pinero and Jones*. Bangalore.

4. Sharma, Rameshvar P. *Locative possessive and existential constructions in English and Hindi*. Poona.

Sanskrit

1. Bhat, Gopalkrishna Narayana. *A critical study of the Nighantu*. Karnatak.

2. Gupta, Chanchala. *Panchtantra mein nihit ayurvedik tatvon ka sameekshatmak adhyayan*. BHU.

3. Majumdar, Shobhanaben Chandrakant. *Sanskrit rupakon mein nirupit Shree Krushna charitra*. Patel.

4. Mishra, Lalta Prasad. *Vaidik sahitya mein manas rog kee awadharna*. BHU.

5. Mishra, Vinod Kumar. *Pananity Vyakarana pratishakhyayos tulanatmak adhyayanam*. BHU.

6. Mishra, Yogendra Nath. *Sandeshrasak ka bhashavaigyanik adhyayan*. BHU.

7. Pataskar, Bhagyalata A. *Utsarga pavada relation in the Astadhyayi*. Poona.

8. Rama Kant. *Matsyapuran ka ayurvedik samagriyon ke pariprekshya mein ek sameekshatmak adhyayan*. BHU.

9. Rawat, Bimla. *Dhammapada ka sanskritika adhyayan*. Delhi.

10. Seetha, N. *Soundarya lahari of Sri Sankara: A study*. Kerala.

11. Tiwari, Ram Narayan. *Chhandogyopanishad: Ek alochanatmak adhyayan*. BHU.

12. Tripathi, Maya. *Banbhatt kee Kadambari mein vanaspatiyon ka alochnatmak adhyayan*. BHU.

Pali

1. Boonsin, Phramaha. *Buddhasasane samathavipassana.* BHU

Hindi

1. Anil Kumar. *Pragatisheel chetna aur Nagarjuna ka kavya.* BHU.
2. Chaturvedi, Chandra Kant. *Ramcharit Manas mein prayukt kriyapadon ka bhashavaigyanik adhyayan.* BHU.
3. Dureja, Rani Ramnath. *Pragatisheel andolan ke alok mein Bhishma Sahani ke katha sahitya ka anusheelan.* Patel.
4. Gupta, Sushila. *Dr. Ramvilas Sharma ka alochna sahitya.* Delhi.
5. Kamal, Kumud Kumar. *Mudrit Hindi sahitya kee 1828 se 1978 tak prakashit granthputiyon evam pralekhan suchiyon ka alochnatmak adhyayan.* Mithila.
6. Khulbe, Shashi. *Bhakti kaleen kavya mein krira aur manovinod.* Delhi.
7. Kushwaha, Ram Prakash. *Pragatiwadi kavya aur Kedarnath Agarwal.* BHU.
8. Pandey, Kshama Shankar. *Muktibodh kee kavya bhasha.* BHU.
9. Pathak, Badri Narayan. *Nirala sahitya mein samvedanatmak chetna.* BHU.
10. Sharma, Kiran Chandra. *Hindi natak mein vidroh kee parampara.* Delhi.
11. Singh, Jang Bahadur. *Samajik-sanskritik antarvirodh: Dhoomil aur samkaleen kavita.* BHU.
12. Singh, Lily Rani. *Samkaleen Hindi upanyason mein nari kee samajik sthiti ka mulyankan, san 1956 se 1975 tak.* BHU.
13. Varsha Ben. *Dinkar kavya sandarbha adhyayana.* Osmania.

Urdu

1. Maimoona. *Khawaja Ahmed Faruqi: Life and works.* Osmania.

Bengali

1. Sanyal, Tandra. *Kabi Premendra Mitra.* BHU.

Oriya

1. Meher, Raghunath. *Gangadhar Kavya-Manas: Eka adhyayana: Kavyadarshan silpamulya vichar.* Sambalpur.
2. Singh, Bijayananda. *Humour and satire in the prose fiction of Faturananda, 1952-82.* Utkal.

Marathi

1. Dhere, Aruna R. *Adibandh ani swatantrayottar Marathi katha Kadambari: Dr. J.K. Kulkarni va Chitraya Khanolankar yanchya kritichya sandarbhat.* Poona.

Persian

1. Akhtar, Shameem. *Shaikh Mohammad Ali Huzin: Life and works with special reference to his poetry.* BHU.

Tamil

1. Kesavaraj, V. *A study of South Indian hero-stones.* Kerala.
2. Mangayarkarasi, R. *Village novels in Tamil.* Madurai.
3. Meena Kumari, A. *A critical study of N.A. Pichamurthi writings.* Madurai.
4. Srinivasan, S. *Alwar patalkalil anikal.* Madurai.
5. Subramaniyan, P. *Thaipoosam and Punguni Uthiram festival in Palan Murugan Temple.* Madurai.
6. Susila, M. *The cankam litrary conventions in Kambaramayanam.* Madurai.

Malyalam

1. Govindan Nayar, K. *The influence of Maxim Gorky on Malyalam novels between 1930 and 1960.* Kerala.
2. Manavalan, Paul. *Contribution of christian missionaries to the culture and language of Kerala: A study giving emphasis to the works of Arnos Padri.* Kerala.

Kannada

1. Haradagatti, Shivaputrappa Mahadevappa. *Kavi Raghavanka Hagu awara krutigulu.* Karnatak.
2. Renukaradhya, S.S. *Pampanannu kurita vimarshe ondu adhyayana.* Bangalore.

Telugu

1. Sarma, M. Rama Veereswara. *The place of the birds in old Telugu poetry.* Andhra.
2. Sarma, Ramadugu Venkateswara. *The complete survey of the literary works of Sri Indraganti Hanumatchastry.* Andhra.
3. Subba Reddy, S. *Doobagunta Narayana Kavi: Panchatantra pariseelanamu.* Krishnadevaraya.
4. Viswanaoh, Bhamidipati. *Deviations from Valmiki in Ramayana Kalpavruksha of Viswanatha.* BHU.

Geography

1. Rai, Vinay Kumar. *Water resources of the Ballia district, Uttar Pradesh: A hydrogeographical study.* BHU.
2. Singh, Rama Shankar. *Changing occupational structure of scheduled tribes of Chotanagpur, Bihar.* BHU.
3. Singh, Yadubansh. *Bhojpur plain: A study in cultural geography.* Magadh.

History

1. Balakrishnan, N. *The history of Dravida Munnetra Kazhagam,* 1949-1977. Madurai.
2. Dwivedi, Nagendra Kumar. *Banaras va Allahabad mein savinay-awagya-andolan.* BHU.
3. Mishra, Ram Prasad. *Sahajayana in Orissa.* Sambalpur.
4. Naqvi, Mir Sadiq Ahmed. *Muslim religious institutions and their role under the Qutab Shahs.* Osmania.
5. Naval Krishna. *Bikaner, court miniature paintings.* BHU.
6. Nayak, Braja Mohan. *First Congress Ministry in Orissa.* BHU.
7. Niharika. *A study of stone beads in Ancient India.* BHU.
8. Rai, Nanji. *Prachin Bharat mein yatayat ke sadhan, 600 E. Pu se* 300 *E. tak.* BHU.
9. Ramachandra Rao, Mosalakanti Seetha. *The Srikurmam Temple.* Andhra.
10. Sarda Devi, C. *The history of Madras.* Madurai.
11. Sharma, Ishwar Dayal. *Bharatiya laghu chitron mein Bhagwat Puran.* BHU.
12. Singh, Manju. *Sunga kaleen Bharat mein samajik evam dharmik parivartan ke swarup.* BHU.
13. Singh, Sheela. *Dakshin-purvy Asia kee sanskriti mein Bodhhibriksha.* BHU.
14. Sugandha. *History and archaeology of Anegodi.* Poona.

Combined Entrance Examination, 1987

(ORGANISED BY ADMISSION COMMITTEE, KAMLA NEHRU INSTITUTE OF TECHNOLOGY, SULTANPUR)

The Combined Entrance Examination (CEE) will be held from May 18, 1987 for admission to the First Year course of B.E./B.Tech/B.Text. for academic year 1987-88, offered at the following institutions:

FOUR YEAR COURSES:

(i) COLLEGE OF TECHNOLOGY, G.B. PANT UNIVERSITY OF AGRICULTURE AND TECHNOLOGY, PANTNAGAR.
(ii) GOVERNMENT CENTRAL TEXTILE INSTITUTE, KANPUR.
(iii) HARCOURT BUTLER TECHNOLOGICAL INSTITUTE, KANPUR.
(iv) INSTITUTE OF ENGINEERING & TECHNOLOGY, LUCKNOW.
(v) KAMLA NEHRU INSTITUTE OF TECHNOLOGY, SULTANPUR.
(vi) MADAN MOHAN MALVIYA ENGINEERING COLLEGE, GORAKHPUR.
(vii) MOTILAL NEHRU REGIONAL ENGINEERING COLLEGE, ALLAHABAD (U.P. SEATS ONLY).

FOUR/FIVE YEARS COURSES:

(viii) FIFTEEN OTHER REGIONAL ENGINEERING COLLEGES (U.P. SEATS ONLY).

THREE YEARS COURSES:

HARCOURT BUTLER TECHNOLOGICAL INSTITUTE, KANPUR.

AGE LIMIT: Upper age limit of 21/22 years as on 1-10-87, relaxable by two/three years for S.C./S.T. candidates depending upon the institutions. There is no age limit in some of the Regional Engineering Colleges.

MINIMUM QUALIFICATIONS:

(a) For Four/Five years B.E./B.Tech/B.Text. courses
    (i) Intermediate Examination with Physics, Chemistry and Mathematics of U.P. Board or equivalent.
    (ii) Intermediate Examination with Physics, Chemistry & Mathematics or Intermediate Agriculture examination of U.P. Board or equivalent.
    (for B.Tech. Agricultural Engineering only).
(b) For Three years B. Tech. (Chemical Technology) Courses B.Sc. with Physics, Chemistry and Mathematics.

Candidates appearing at the qualifying examination for admission are allowed provisionally. However, they must furnish their results before the date of interviews failing which their candidature shall be cancelled. Candidates seeking admission to the 3 years degree course at H.B.T.I. are required to furnish their result of B.Sc. degree examination by 31st August, 1987.

SELECTION OF CANDIDATES ON ALL INDIA BASIS:

(i) All seats under 3 years degree course at H.B.T.I., Kanpur.
(ii) 15% seats at G.B. Pant Agricultural University, Pant Nagar.

LAST DATE FOR RECEIPT OF APPLICATION:

Without late fee	20-3-1987
With additional late fee of Rs. 150/-	15-4-1987

Application forms with Information Brochure (containing details of CEE, 1987) will be available from 20th January, 1987 from all the Institutions of U.P. mentioned above against **CASH** payment of Rs. 15/- per form for Four/Five years & Rs. 16/- for Three years B.Tech. course (Chemical Tech.). The forms can also be obtained by post from the Coordinator, Admission Committee, Kamla Nehru Institute of Technology, Sultanpur (U.P.) Pin-228118 by sending Crossed Bank Draft of requisite amount payable at any branch (PNB, SBI, BOB, CBI, Allahabad, and Canara Bank) in Sultanpur (Avadh) in favour of Coordinator, Admission Committee, Kamla Nehru Institute of Technology, Sultanpur (U.P.). A self addressed slip of size 15 Cm. × 6 Cm. with name and full address written in block letters should be sent alongwith the request for sending the form.

COORDINATOR
ADMISSION COMMITTEE

CLASSIFIED ADVERTISEMENTS

MANIPUR UNIVERSITY
CANCHIPUR : IMPHAL

ADVERTISEMENT NO. MU/4-16/81/FCY

Dated, the 23rd December, 1986

Applications are invited for the following posts:

Sl.No.	Name of Post	Specialization	No. of Post
1.	Professor in Mathematics	Pure or Applied Mathematics	1 (One)
2.	Professor in English	English Language Teaching (Methods)	1 (One)
3.	Professor in Chemistry	Physical/Inorganic Chemistry	1 (One)
4.	Professor in Economics	Econometrics/Advance Economic Theory	1 (One)
5.	Associate Professor in English	English Language Teaching (Method)	1 (One)
6.	Associate Professor in Commerce	Marketing/Accounting and Finance	1 (Temporary likely to be permanent)
7.	Associate Professor in History	Medieval Indian History	1 (One)
8.	Assistant Professor in History	Medieval Indian History	1 (Temporary for one year)
9.	Assistant Professor in Physics	Solid State Physics/Nonlinear dynamical systems/ Theoretical Physics/Electronics (Solid State Electronics)	1 (-do-)
10.	Assistant Professors in Life Sciences	(1) Endocrine Physiology (2) Animal Physiology (3) Bio-Statistics	1 (Temporary for one year) 1 (-do-) 1 (Temporary for two years)

Scales of Pay

1. **Professor** :- Rs. 1500-60-1800-100-2000-125/2-2500/-

2. **Associate Professor** :- Rs. 1200-50-1300-60-1900/-

3. **Assistant Professor** :- Rs. 700-40-1100-50-1600/-.

There will be allowances like DA, ADA, HRA, Medical Allowances, etc. admissible under the rules of the University. Benefits of GPF-cum-pension-cum-gratuity or CPF-cum-gratuity are also available.

Essential Qualifications

1. **Professor** : An eminent scholar with published work of high quality, actively engaged in research in the relevant field. About 10 (ten) years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge in the relevant field.

2. **Associate Professor** : (a) Good academic record with a doctoral degree or equivalent published work in the relevant field. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

(b) About 5 years' experience of teaching and/or research provided that at least three of these years were as Assistant Professor/Lecturer or in an equivalent position.

(c) This condition may be relaxed in the case of candidates with outstanding record of teaching/research.

3. **Assistant Professor** : (a) A Doctorate degree or research work of an equally high standard; and

(b) Good academic record with at least second class Master's degree in the relevant field from an Indian University or an equivalent degree from a foreign University.

Provided, if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax the above qualifications.

Candidates invited for interview for the posts of Professors and Associate Professors will be given first class railway fare as TA from the place of origin to Calcutta or Gauhati and air-fare from Calcutta or Gauhati, as the case may be, for both ways, on production of travel documents.

Candidates invited for interview for the posts of Assistant Professors shall be given second class railway-fare or air-fare from Gauhati as TA for both ways on production of travel documents.

How to Apply

Applications, on plain papers (duplicate), with attested copies of certificates in support of qualifications and experiences showing candidate's name, father's name; academic and professional attainment; experience; field of specialization; publications (to be enclosed with reprints); research projects undertaken; details of visits to foreign countries and assessment reports from at least two persons well acquainted with the candidate's professional work should reach the Registrar, Manipur University, Imphal - 795003 on or before **19-1987.**

Those who have already applied for the post of Associate Professor in Medieval Indian History need not apply again.

Applications received late or incomplete in any respect may not be entertained. Persons already in service must apply through their employers so as to reach this office on or before the last date fixed. No candidate will be considered for appointment unless he/she produces a "No objection Certificate" from his/her employer at the time of interview.

Retired persons who have not attained the age of 62 years may also apply for appointment on contract basis. It will be open to the University to consider the names of suitable candidates who may not have applied.

OSMANIA UNIVERSITY

HYDERABAD-500 007 (A.P.)

Advertisement No. 11/86

Dated : 30.12.1986

Applications in the prescribed form together with the registration fee of Rs. 5/- payable through I.P.O./Demand Draft only drawn in favour of the Registrar, Osmania University are invited for the following posts in the University service, so as to reach the undersigned on or before **29-1-1987.**

1. Professor of Applied Geo-Chemistry	One
2. Lecturer in German	One

Scale of Pay

Professor : Rs. 1500-2500.

Lecturer : Rs. 700-1600.

Age

Professor : Not above 50 years.

Lecturer : Not above 35 years.

Note: (i) Age limit does not apply to the employees of this University.

(ii) Relaxation in age to the extent of five years shall be granted to the candidates belonging to SCs, STs and BCs.

(iii) Age relaxation to the extent of five years shall also be granted to the teachers of affiliated colleges who have put in at least five years service in any of the college affiliated to O.U.

14%, 4% and 25% reservations are made for the candidates belonging to SCs, STs and BCs respectively for the post of Lecturers only.

Application forms can be had from the Director, Department of Publications and University Press, Osmania University, Hyderabad-500 007 on payment of Rs. 4.50 in person or by I.P.O./Demand Draft together with the postal charges for ordinary/registered post made payable to the Director and by sending self addressed envelope of $14\frac{1}{4}$x$26\frac{1}{4}$ cms. Full particulars can be had from the Director at free of cost.

REGISTRAR

REGIONAL ENGINEERING COLLEGE

Hazratbal, Srinagar, Kashmir

Advertisement Notice No. 4 of 1986

Dated 20-12-86

Situation Vacant

1. **Electrical Engineering**

1. **Professor** : Power Systems/Power Electronics/High Voltage Engineering.

2. **Lecturer (Temporary)** : Power System/Power Electronics/Electrical Machines.

3. **Teaching Assistant (Temporary).**

2. **Mechanical Engineering**

1. **Lecturer** : Production Engineering/Industrial Engineering/Machine Design/Thermal Engineering.

2. **Teaching Assistant (Temporary).**

Qualifications (Professor)

Professor : An eminent scholar with published work of high quality, actively engaged in research. Ten Years' experience of teaching and/or research. Experience of guiding research at Doctoral level. **OR** an outstanding Engineer/Technologist with established reputation who has made significant contribution to knowledge.

Lecturer (Essential)

Master's degree (Desirable) : Good academic record with 1st class B.E./M.E. degree with teaching experience.

Teaching Assistant

First class B.E. degree with some teaching experience.

Pay Scales

1. **Professor** : Rs. 1500-60-1800-100-2000-125/2-2500.

2. **Lecturer** : Rs. 700-40-1100-50-1600.

3. **Teaching Assistant** : Rs. 700/- plus allowances.

Applications on plain paper with complete Bio-Data should reach the Registrar on or before **19-1-1987.** Applications should be accompanied with postal order for Rs. 20/- (Rs. 10 in the case of SC/ST), Handicapped and Socially and Educationally Backward class Candidates.

K.G. Ahmad
REGISTRAR

IT PAYS
TO ADVERTISE
IN
UNIVERSITY NEWS

DAYALBAGH EDUCATIONAL INSTITUTE

(Deemed University)

Dayalbagh, Agra - 282 005

Applications are invited in the prescribed form for the following posts:-

I. **Readers** : One each in—

1. Physics (Specialisation in Electronic Science).
2. Computer Science and Applications.
3. Sanskrit.
4. Drawing and Painting.
5. Home Science.

II. **Lecturers** : in—

1. Applied Business Economics (Commerce) — 1
2. Accountancy and Law (Commerce) —1
3. Rural Development (Home Science/ Extension/Nutrition/Child Care/ Child Development/Textile and Clothing Construction) — 1.
4. English — 1.
5. Music (Vocal) — 1.
6. Music (Sitar)* — 1.
7. Sanskrit — 1.
8. Drawing and Painting — 1.
9. Physics (Specialisation in Electronic Science) — 2.
10. Computer Science and Applications — 2.
11. Education — 4 (one each in Library Science/English and 2 in Home Science).

*Those who applied earlier in response to the advertisement of June 1986 need not apply again as the same applications will also be considered.

Pay Scales : Readers : Rs. 1200-1900 and **Lecturers** : 700-1600.

Total Monthly Emoluments : Readers : Rs. 2860/-, and **Lecturers** : Rs. 1693/-.

Note : 1. Prescribed application forms alongwith details of minimum qualifications can be had from the office of the Registrar of the Institute on payment of Rs. 5/- by cash at counter or by sending a bank draft accompanied by a self addressed and Rs. 5.50 stamped envelope of the size 22 x 10 cm.

2. Applications complete in all respects alongwith enclosures and registration fee of Rs. 10/- should reach the Registrar of the Institute latest by **21 February, 1987.**

3. All payments be made either in cash at counter/or by bank draft drawn in favour of 'DAYALBAGH EDUCATIONAL INSTITUTE' payable at AGRA.

4. Separate application be made for each post.

5. The number of posts may vary according to need.

6. Government/Semi-Government employees should apply through their employers or produce a no objection certificate at the time of the interview.

7. SC/ST candidates will be preferred if found otherwise suitable.

8. Incomplete applications and those not accompanied by testimonials and/or registration fees will not be considered.

9. It is likely that some of the posts may not be filled in immediately.

10. Superannuated persons are not eligible for employment.

11. An applicant for higher post may be offered lower post.

REGISTRAR

INDIAN INSTITUTE OF SCIENCE

BANGALORE-560012.

Requires

SCIENTIFIC OFFICER (One Post) in the Depart ment of Mechanical Engineering.

QUALIFICATIONS: M.E./M.Tech in Mechanical Engg. with specialisation in Heat Transfer/Refrigeration and Air Conditioning. Knowledge of Experimental and Numerical methods in Thermofluids Engg. desirable.

Emoluments: Rs. 2,123.00 (approx.) p.m. in the scale Rs. 700- 1300.

Details and prescribed application forms can be obtained on request accompanied by an Indian Postal Order for Rs. 5/- (free of cost to SC/ST on production of Caste Certificate from a competent authority) drawn in favour of Registrar, Indian Institute of Science, Bangalore along with a self-addressed stamped (Rs. 5/-) envelope of the size 28 × 18 cms on or before **20th January 1987.**

R(IA)308-57/86.

REGISTRAR

SUKHADIA UNIVERSITY

UDAIPUR

Advertisement No. 11/86

Dated : 27-12-1986

Applications are invited on prescribed application form for the following posts in Teaching/Research/Extension on regular basis in the University. **The application form and FULL DETAILS ABOUT QUALIFICATIONS AS PRESCRIBED BY THE UNIVERSITY etc. can be obtained from Shri A.L. Sahlot, Assistant Registrar (Recruitment), University Administrative Office, Sukhadia University, Udaipur, Pin - 313 001,** on payment of Rs. 5/- through Crossed Indian Postal Order payable to the "Comptroller, Sukhadia University, Udaipur" alongwith a self addressed envelope of 27 cms. x 12 cms. size bearing Postal Stamps of Rs. 1.50 only and **send the Application form duly completed in all respect on the same address upto 31-1-1987.**

Those candidates who have already applied for the posts mark (*) in response to our previous advertisement Nos. 1/85, 2/86, 6/86, 7/86 and 10/86 **need not to apply again,** but they are requested to please send their fresh Bio-data (One side typed) on plain paper to upto-date the same.

Professor : Pay Scale : Rs. 1500-60-1800-100-2000-125/2-2500.

*1. Agronomy	1
*2. Plant Breeding and Genetics	1
*3. Soil & Water Conservation Engineering:	
(a) Irrigation and Water Management	1
(b) Hydrology and Drainage	1
*4. Associate Director Research (Vety. and Animal Science)	1
*5. Political Science	1
*6. Rajasthani :	1

Qualification for Professor
Rajasthani : एम.ए., पी.एच.डी.

हिन्दी अथवा राजस्थानी भाषाओं में तथा अभ्यार्थी का शोध कार्य "मीरा" के विषय में हो।

Associate Professor : Pay Scale : Rs. 1200-50-1300-60-1900.

*1. Agronomy	7
*2. Agro-forestry	2
*3. Extension Education	4
*4. Entomology	1
5. Bio-Chemistry	1
6. Horticulture	2
7. Plant Physiology	1
*8. Mining Engineering	1
*9. Electrical Engineering	1
*10. Soil and Water Conservation Engineering	1
*11. Processing and Food Engineering	1
12. Farm Machinery and Power Engineering	1
*13. Home Management	1
*14. Child Development	1
*15. Physics	1
*16. Senior Research Officer/Dy. Director (Population Research Centre)	1
*17. Hindi	1
*18. Rajasthani	1

Desirable : M.A. in Rajasthani OR M.A. Hindi (with Dingal)

*19. Commerce—Business Management (M.B.A.)	2

Specialization : Production/Finance/Personnel/Manarketing.

Assistant Professor : Pay Scale : Rs. 700-40-1100-50-1600.

*1. Extension Education	5
*2. Agriculture Statistics	4
*3. Agriculture Economics	2
4. Agronomy	2
*5. Soil Science	4
*6. Limnology and Fisheries	1
7. Human Nutrition	1
8. Agro-forestry	1
*9. Dairy Economics and Extension Education	1
*10. Mining Engineering	1
*11. Electrical Engineering	1
*12. Mechanical Engineering	1
*13. Processing and Food Engineering	1
*14. Computer Application/System Analyst	1
15. Farm Machinery and Power Engineering	1
*16. Veterinary Medicine	1
*17. Veterinary Physiology and Biochemistry	2
*18. Animal Breeding and Genetics	1
19. Physics	1
20. Chemistry	1
*21. Mathematics	1
22. Animal Production	1
*23. Law	1
*24. Home Science Extension Education	1
*25. Library Science	1
*26. Rural Sociology	1
*27. Research Officer (Population Research Centre)	1
*28. Rajasthani	1

Desirable M.A. in Rajasthani OR M.A. Hindi (with Dingal)

*29. Commerce — Business Management (M.B.A.)	2

Qualification: A Master's Degree in Business Administration (M.B.A.) or M. Tech. in Engineering with 1st class with the provision that the incumbent would acquire a doctorate degree within a period of Eight years.

*30. Economics	1

General Notes

1. Number of posts may be INCREASED OR DECREASED.
2. Application forms received after the expiry of the last date may also be considered at the discretion of the Vice-Chancellor.
3. 16% post would be reserved for Scheduled Caste and 12% for Scheduled Tribes, subject to General suitability.
4. A Higher start in the grade may be considered for exceptionally qualified candidate.
5. **The University reserves the right not to fill up any post advertised.**

G.S. Sharma
REGISTRAR

STRUCTURAL ENGINEERING RESEARCH CENTRE

GHAZIABAD (U.P.)

(Council of Scientific & Industrial Research)

Advertisement No. 4/86

Applications are invited from Indian Nationals for the following posts in the Structural Engineering Research Centre, Ghaziabad which is a forward looking organisation well equipped for advanced research in Structural Engineering:

Scientist Grade 'E-I' : 3 Posts
(Rs. 1500-60-1800-100-2000).

Qualifications and Experience

1st Class B.E. (Civil) with 12 years experience OR M. Tech/M.E. or Ph.D. in Structural Engineering with original work as evidenced by patents or publications; Evidence of leadership with about 10 years of R and D experience in the area related to the job requirement.

Job description

For Post (i) — The selected candidate would be required to organise, direct and conduct research in the field of computer aided design of complex structures especially, high rise buildings and large span and underground structures.

For Post (ii) — The selected candidate would be required to organise direct and conduct research in the field of high rise buildings e.g. development of techniques of theoretical and experimental analysis and design of tall buildings. He would also work on selected problems like soil structure interaction, monitoring performance of structures in service, mathematical modelling, etc.

For Post (iii) — The selected candidate would be required to organise, direct and conduct research on dynamic behaviour of structures like high rise buildings and large span structures. He would also be required to organise and conduct field experiments to study behaviour of structures in service.

2. **Scientist Grade 'C'** : 2 Posts
(Rs. 1100-50-1600).

Qualifications and Experience

Essential : A first class degree in Civil Engg. with 6 years experience or M.E. with 4 years experience or Ph.D. (Engg.) with 2 years experience.

Desirable : Published papers of high quality in the fields of large span structures, high rise buildings, computer aided design of complex structures and numerical techniques for structural analysis.

Job Requirements

The Scientist would be required to work in the fields of large span structures and integrated analysis and design of structures computer aided design.

3. **Security Assistant : 1**

Post Scale Rs. 1640-60-2600-EB-75-2900. (Revised).

Educational Qualifications

Bachelor's Degree from recognised University (relaxable in Exceptionally deserving Cases) with at least 5 years experience relating to management of Security, Fire Fighting/prevention and allied jobs. Should be able to handle Fire Arms. Ex-Army/other para military personnel/ Officers of Home Guard organisation preferred.

Job Requirement

The selected candidate will be required to look after the Security arrangements of the SERC installation, premises, residential site and other residential accomodation of SERC at Ghaziabad and carry-out deployment and supervision of Security staff. He will also be responsible for handling and maintenance of Fire Fighting appliances of the Centre.

Age Limit

28 Years, relaxable in case of SC/ST Candidates and Ex-Servicemen as per rules. No age bar for CSIR employees.

The selected candidates will be posted at S.E.R.C., Complex, Ghaziabad and will also be liable to be transferred any where in India. The selected candidates for the post of Scientist E-I and C will be appointed on contract basis for a period of 6 years including 2 years probationary period. The post of Security Assistant is temporary but is likely to continue. The posts carry usual allowances as admissible to central Govt. employees.

Applications in prescribed form obtainable from the Admn. Officer, Structural Engineering Research Centre, Post Bag No. 10, Ghaziabad by sending self addressed and stamped envelope of 90 Paise of 28 x 13 cms by **18th January, 1987** should reach him duly completed together with attested copies of certificates/testimonials and crossed Indian Postal Order for Rs. 8/- Payable to Director, S.E.R.C., Ghaziabad by **2nd Feb., 1987** (Sch. Caste/Sch. Tribe candidates are exempted from this fee). Candidates already applied for the posts against advt. No. 2/86 need not apply. Application from employees working in Govt. Deptt., Public sector organisations and Govt. funded agencies will be considered only if forwarded through proper channel and with the clear certificate that in the event of selection of the candidate he/she will be relieved within one month of receipt of the appointment order. Incomplete applications as well as those received after the due date are liable to be rejected. Those who are called for interview will be paid travelling allowance to the extent of a single second class return rail fare (Mail or Express) by the shortest route as per rules.

The selected candidates will be liable to serve, if so required in any Defence Service or post connected with the defence of India for a period of not less than four years before attaining the age of 40 Years.

Candidates are required to mention clearly on the application if any of their close relative is working in SERC, Roorkee/ Ghaziabad and if so, full details thereof.

Since it is not possible to call all the eligible candidates for interview/personal discussion, the applications shall be short listed for the purpose and the decision of the SERC in this behalf will be final and binding on all concerned.

CANVASSING IN ANY FORM AND/OR BRINGING IN ANY INFLUENCE POLITICAL OR OTHERWISE WILL BE TREATED AS DISQUALIFICATION FOR THE POSTS. INTERIM ENQUIRIES WILL NOT BE ATTENDED TO.

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House,
16 Kotla Marg, New Delhi-110002. Grams: UNIBOARD. Phones: 3315105, 3313390, 3312305, 3310059 and 3312429
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E.2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

University
News

2 FEB [illegible]

ONDAY, JANUARY 19, 1987 Rs. 1.50

Inter-University Athletics Meet

Calicut University athletes with Women's Championship Trophy which was presented to them by Mrs. K.C. Pant

AIDS
HOW TO PROTECT YOURSELF

AIDS is a dangerous disease and so far there is no known cure fot it. So there are lot of rumours about it. But it is not difficult to protect oneself from it, provided some facts about it are understood.

WHAT IS AIDS?

AIDS stands for Acquired Immuno-Deficiency Syndrome. It is caused by a virus that destroys the body's natural defence system.

HOW IT SPREADS?

The only likely way for someone to catch the AIDS virus is from the blood or semen from an infected person to get inside his or her body.

Most people get AIDS virus by having sex with an infected person. The rest have it by injecting themselves using needles shared with an infected person as happens commonly among the drug addicts. Only rarely transfusion of blood from an infected person have been responsible for its spread.

Not everyone who carries the virus develops AIDS. In fact most will not. But anyone who has the virus can pass it on, even if they feel and look completely well.

YOU DO NOT GET AIDS FROM

- Normal social contact such as shaking hands, touching and hugging.
- Swimming pools, restaurants and other public places.
- Coughs, sneezes and spitting.
- Clothing.
- Toilet seats, door knobs, food, glasses and cups.

YOU DO NOT CATCH AIDS WHEN YOU :

Donate blood

Have injections or any other treatment from your doctor, dentist or any other health care worker.

WHAT YOU SHOULD AVOID?

- Casual sex with strangers. It is always risky. You may not know that the stranger is an infected person.
- Anal sex. It involves the highest risk and should be avoided.
- The more the sex partners, the more the risk.
- Sharing injection needles with drug addicts.

REMEMBER

AIDS is not a disease to take risk with. There is no cure. AIDS control depends on how people behave.

FOR MORE INFORMATION:

You may write to Asstt. Director General (AIDS), Directorate General of Health Services, Nirman Bhavan, New Delhi—110011

YOU CANNOT CURE AIDS,
BUT YOU CAN CERTAINLY AVOID IT

Issued by CENTRAL HEALTH EDUCATION BUREAU
DGHS, KOTLA ROAD, NEW DELHI—110002.

davp 86/302

UNIVERSITY
NEWS

VOL. XXV JANUARY 19
No. 3 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

UNIT
2 FEB 1987
C.F.T.R.I., MYSORE

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Editor :
SUTINDER SINGH

Citizenship Education

G.B.K. Hooja*

Civic Scenario

V.S. Naipaul writes in pain and anguish when he deprecates the cultural mores of the masses inhabiting the land of his ancestors. But can he be faulted? If we indulge in bride-burning or if we treat our women folk shabbily or if we urinate as and where we like, can we claim to be called civilized? As for our civic habits, let us have a look at our cities. We see heaps of filth lying all over the streets and street corners. Our luxury hotels are known for breeding cockroaches; our schools, colleges, courts, offices and even hospitals are adorned with dirt, cob-webs, betel-spits. We urinate and defecate anywhere and everywhere as we please, primarily for lack of public convenience facilities. But where such facilities have been made available by a merciful municipality, the standard of their maintenance is far from satisfactory for which the users are no less responsible than the officials in charge of maintenance of the facilities. Our water taps remain leaking or run dry due to negligence and/or mischief. Our street lamps burn during the day and are put out at night. Travel by trains and you find the level of facilities none too commendable again due to the negligence of unionized staff and, of course, over-crowding. Bus travel is no better and come to think of cars. These too are now outstretching the limited capacity of roadways and add to it the indiscipline, lack of regulation by traffic police and you have a scenario of traffic jams, abuses, shouting and frayed tempers. Parking spaces are scenes of herding. The habit of Q-forming may be noticeable here and there, but by and large muscles come into play and woe betide the weakest.

Communal Riots and Terrorism

Next, let us take into account another series of ugly phenomena which continue to mar the image of free India to our utter shame. Communal riots have a tendency to erupt in India with a frequency which berates our self-adulatory claims to high philosophy. Come to think of it, who are the victims? The poor, the disadvantaged, the helpless, the have-nots. The beneficiaries, the agent provocateurs all have a hey day at the cost of the innocent, the credulous and the simple-minded folk who are worked into frenzy and madness by the wire-pullers sitting cozy in their arm-chairs in well-guarded palaces. Certainly, these riots set at naught all our claims to being called civilized; and we do injustice to beasts when we call them beastly for, truly speaking, beasts are far better behaved.

We have lost so many precious lives simply because they belonged to a particular community or they had the courage to preach the gospel of unity and national accord. The state machinery of law and order is hard put to it in tracing the out-law elements and in the process is forced to apprehend and question many an innocent and unconnected person who in turn swell the ranks of the aggrieved and this further aggravates the malady.

**Former Vice-Chancellor, Gurukula Kangri Vishwavidyalaya,
5, Abul Fazal Road, New Delhi.*

Minority Complex

Nursing and parading of minority complex has proved to be another bugbear which seeks to bedevil our beloved land. We have communal minorities, caste minorities, linguistic minorities, regional minorities adnauseum. In a Democratic and secular polity where every individual enjoys an equal status and has his freedoms and rights protected by constitutional guarantees, the concept of permanent group minorities should become an anachronism.

Centrifugal Tendencies

Thanks to the Communication Revolution the process of inter-social and inter-regional cooperation may now be expected to be accelerated. Otherwise very frequently the state, communal and linguistic barriers tend to generate centrifugal tendencies which threaten to distort and disrupt the national fabric. We have Punjabis, Bengalis, Marathas, Gujaratis, Tamils, Andhras, Sikhs, Muslims, Jats, Brahmins galore amidst us but hardly any Indian.

Thanks to the concept of SAARC, forward-looking visionaries may now hopefully look forward to the growth of a confederational citizenship, with local national autonomy duly guaranteed, thus releasing tremendous resources and energies for a united war against poverty and deprivation which is the burning need of South Asia.

While it speaks for the statesmanship of the leaders of the SAARC nations, it raises hopes of better life for the millions of struggling and bewildered masses inhabiting these countries. United together in bonds of common cooperative effort, South Asia may hopefully emerge as a force to be reckoned with in world councils.

Sectarian Schools and Colleges

Our schools and colleges are yet another breeding ground of mutual suspicion, estrangement and, of course, inequality. On the one hand, we have the so-called public schools. On the other, we have Government/municipal and denominational institutions which generate feelings of otherness and distrust instead of a sense of common citizenship and oneness. The refrain is that we are different; they are different and never the twain shall meet. Two decades ago the Kothari Commission advocated the strategy of the neighbourhood schools, but that salutary recommendation which would have gone a long way in fostering a sense of neighbourhood loyalty has yet to seep into the awareness of our policy makers.

Yet another malady from which our educational system suffers is that it breeds competitive, individualistic spirit instead of cooperative, team spirit. Most of the time our students are whipped into action to ou shine the other classmates, to do better than their f low students rather than to work together as a tea Our achievers are graded in proportion to their achiev ment for their own glory and not for the glory of t team or school as a whole. Even while our boys pl international matches as a team, it may be sadly d cernible that they try to score and dribble individua rather than pass the ball and bring home a joint victor

These are, in brief, some of the challenges whi confront our policy-makers seeking to develop a pro ramme for the growth of healthy citizenship.

Educational Process

The next question, therefore, is how to go abo the task?

Essentially, it is an educational and training pr cess and it calls for the development of a scientif temper combined with spirituality as distinct fro spiritualism. Spirituality is basically universal whi spiritualism tends to generate separatist groups.

Education is not mere imparting of information i some selected subjects. Acquisition of knowledge i only one of the outcomes of education. Education shoul help the educand to discover himself, to develop h innate abilities and above all, to cultivate desirable att tudes and values like sense of duty, discipline, fellow ship, goodwill and tolerance.

With this end in view, education should foster i the students an understanding of:

(1) (a) India's cultural heritage, with its diversity in the form of different religions, beliefs ways of living and behaviour etc.;
    (b) geographical, economic and social factors influencing the life of the people;
    (c) impact of scientific and technological development in bringing the people closer;

(2) a sense of belonging and responsibility to the nation and the world at large; and
(3) an appreciation of the basic human values as desired in social, moral and personal life.

Catch Them Young

When does this educational process start?

It is now universally recognized that the education of a person starts from the day his parents decide to raise a family, to use the Sanskrit phraseology, with the **garbhadaan.** The story of Prince Abhimanyu learning the technique of entering into the **Chakravyuha** while listening in the womb to the narration of the procedure by his father, Arjuna to his expectant mate is an oft-quoted tale of Indian mythology. That is why following the **Shastric** (scientific) injunctions, Swami Dayananda prescribed three **sanskaras** (consecration ceremonies) to be performed by expectant parents before the birth of a child, namely, the **Garbhadaan,** the **punsavan,** and the **Seemantonayan**. Briefly, at these ceremonies, the parents are reminded to constantly watch their conduct, food, environment, social and personal behaviour and to ensure that the expectant mother remains unperturbed, cheerful and well-looked-after during her pregnancy. In modern parlance, this is called ante-natal care.

Similarly, at the **Yagnopaveet** or **Upanayan** ceremony, the child is invested with three threads as symbols of three debts to be discharged by him, namely, the **Deva Rin,** the **Rishi Rin**, the **Pitri Rin,** the first one being the debt or duty to gods—their natural manifestations being sky, air, water, fire, earth—in other words to maintain the purity of environmental elements, a concept which has dawned on the Western mind only recently. The second debt, called the **Rishi Rin** is towards the **gurus**, the teachers, the preceptors and the third, of course, is due to the parents, the elders, the family, the city and society.

Then comes the school or the Gurukula. It has been well-said that ethical values are not taught, but caught. So in the close proximity of a **guru** (elder) or the **acharya** (person of noble conduct) as a member of his family, the growing child acquires a battery of good habits and flowers into a responsible, dutiful citizen. He is constantly reminded to "Satyam vada" (speak the Truth) and "**Dharmam chara**" (follow the path of Dharma, duty), to follow the teacher in his good habits and to discard the teacher's failings, to keep good company, to do"Swadhyaya" (self-study as well as study of good literature) to give "daana" required for the maintenance of the non-earning sections of society. The constant refrain is, follow the Dharma (dutiful discharge of social responsibility), for, as the word implies, it is Dharma which holds the social order together. Dharma was not merely a ritual; Dharma is active duty, duty as a son, as a husband, as a brother, as a father, as a house-holder, as a king, as a teacher, as a businessman, as a warrior, as an agriculturist and so on. Thus an individual would have several **Dharmas** to be performed simultaneously and it is his sacred duty to perform them conscientiously as socially bound, otherwise the social fabric cannot be sustained.

Teachers' Training

This leads us to the importance of Teachers' Training. The rule says, "Do not pluck flowers or cross the lawn at all places." The **maali** is there, no doubt, to enforce it. But he often looks a picture of helplessness. Really, this is a habit to be inculcated in the child while quite young. Teachers must take up the challenge, and show how children can and must be trained to develop proper attitudes and outlook and habits of thought and action. By all available media, therefore, citizenship values must be inculcated amongst the young educands who should be helped to evolve healthy habit patterns.

Thus teachers' training programme should form the primary plank of the National Education Policy and teacher educators must assume the major responsibility of sending out well-equipped teachers with right attitudes to man the lakhs of primary and secondary schools and colleges spanning the country and thereby discharge their noble and basic function of breeding good citizens.

Teacher education syllabi for school and college teachers may in the process be reoriented in such a way as to equip teacher trainees in developing problem-solving skills among educands and training them in effective civic action through organisation of practical projects/activities. The teacher trainees may also be trained in developing and using a variety of teaching aids—hardware and software—other than textbooks that are conducive to the promotion of sensitivity and initiative in the educand.

Extension Education

If I were asked to make one single recommendation for programming education and training for Citizenship Development, I would unhesitatingly say, let us make every school/college/university in the country responsible for the environmental conservation and development (including adult educational programmes) of a specified area lying in its neighbourhood. Let every Saturday be observed as Social Service Day in the educational institutions and let bands of students, wearing uniforms and badges of service, and holding brooms and spades in their hands join the local inhabitants to do actual physical work in the prescribed area, and also organise public awareness functions.

Did not Gandhiji require every prospective entrant into his Ashram to clean the latrines? He metamorphosed the nation. In this perspective, the value of promoting organisations like Boys Scouts/Girl Guides, Red Cross, NCC and NSS cannot be over-emphasized. To conclude the argument, let the Shatapatha Brahman speak: "Maatrimaan, pitrimaan, aachaaryavaan purushu veda". One who is blessed with a good mother, a good father and a good teacher is knowledge incarnate. □

Effective College Teaching

Anand P. Srivastava*

Teaching and learning processes incorporate some 'givings' (through communication) by a teacher and some 'takings' (thinking and acceptance) by students. For a very long time this process was done through the 'explication of the text' in oriental and classical learning by *madarasas* and *pathshalas* where students' merely heard lessons. Teachers also supervised student conduct. The purpose then was largely to train *pandits* and *mullahas*. Teaching methods used in these institutions consisted of recitation and lectures. Emphasis was clearly on pure memory in those days and students were highly dependent on teachers for information. Introduction of science in colleges brought with it experimental lecture system and laboratory method of learning. It was for the first time in the history of higher education in the world when teachers and educational administrators realised that students can learn both deductively and inductively. The approach was that teachers made efforts to define problems, analyse data, formulate hypothesis and guide testing while the students did the discovery and formulated conclusions. This was a major step forward in teaching-learning processes and was soon adopted in the field of social sciences and the humanities. Gradually, then emerged the seminar method of teaching and learning which broadened and deepened learning processes through participation between teachers and students. It was realised for the first time that teachers can learn from students. Once it was realised the teachers became less directive in controlling what students should learn and encouraged them to do great deal of self-learning. Care was also taken to see that learning skills get properly developed in students for doing independent learning and thinking. The value of life-long learning and inductive methods thus obtained high importance in university and college life.

Post 1950 era has brought with it the culture of technology with its various implications. The dawn of technology has its impact also on universities and colleges. It has converted the faculty into the roles of a catalyst from that of being merely transmitter of knowledge. Theories of learning have emerged containing humanistic, behavioral and cognitive views and these have influenced teaching-learning processes not only in colleges and universities but also at schools. Self-awareness by students has become the most important factor in higher education. During the last fifty years it has been observed that social and technological changes have outpaced the adjustment capacity of our colleges and universities. Our graduates continue to fail to become change agents and find it hard to cope with changes around them. Education should invariably prepare students for the future while our system is geared largely for the past and only a bit for the present. Ronne Jacobs and Barbara Fuhrmann have identified in 1980 the following Student and Teacher Descriptors, which should help each teacher in understanding as to where a group of the nation's youth are being led to, in our higher education, through the teachers roles:

Student and Teacher Descriptors

Learner Style	*Learner Needs*	*Teacher Role*	*Teacher Behavior*
Dependent (may occur in introductory courses, languages, some science when learner has little or no information upon entering course).	Structure Direction External reinforcement Encouragement Esteem from authority.	Expert Authority	Lecturing Demonstrating Assigning Checking Encouraging Testing Reinforcing Transmitting content Designing materials Grading

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**Chief Librarian, Delhi University Library System, Delhi-110007.*

Learner Style	*Learner Needs*	*Teacher Role*	*Teacher Behavior*
Collaborative (may occur when learner has some knowledge information and ideas and would like to share them or try them out).	Interaction Practice Probe self and others Observation Participation Peer Challenge Peer esteem Experimentation	Co-learner Environment setter	Interacting Questioning Providing resources Modelling Providing feedback Coordinating Evaluating Managing Observing processes Grading.
Independent (may occur when learner has much more knowledge or skill upon entering the course and wants to continue to search on own. Learner may feel instructor cannot offer as much as he or she would like).	Internal awareness Experimentation Time Nonjudgemental support	Facilitator	Allowing Providing requested feedback Providing resources Consulting Listening Negotiating Evaluating.

Our teachers can no longer function only with the expertise of subject contents. The details of students' learning styles and research findings on them have to be studied by our faculty. Following are the learning styles as identified by the famous Tony Grasha and Sheryl Riechmann Research Project about the learning styles of students which must be fully understood by us if we have to make our teaching-learning processes effective and useful:

Student Learning Styles

Student Learning Style	*Description*	*Classroom Activity Preference Based on Research Data*
Competitive	This response style is exhibited by students who learn material in order to perform better than others in the class. They feel they must compete with other students in the class for the rewards of the classroom such as grades or teachers' attention. They view the classroom as a win-lose situation, where they must always win.	To be a group leader in discussion or when working on projects...to ask questions in class...to be singled out for doing a particularly good job on a class-related activity. No real preference for any one classroom method over another (lectures, seminars) as long as the method has more of a teacher-centred focus than a student centred focus.
Collaborative	This style is typical of students who feel they can learn the most by sharing ideas and talents. They cooperate with teachers and peers and like to work with others. They see the classroom as a place for social interaction as well as content learning.	Lectures with class discussion in small groups...small seminar...student-designed and taught courses and classes...group rather than individual projects...peer-determined grades...talking about course issues outside of class with other students...instructor-group interaction.

Student Learning Style	*Description*	*Classroom Activity Preference Based on Research Data*
Avoidant	This response style is typical of students who are not interested in learning course content in the traditional classroom. They do not participate with students and teachers in the classroom. They are uninterested or overwhelmed by what goes on in class.	Generally turned off by classroom activities. Preferences include no tests...self evaluation for grading...no required readings or assignments...blanket grades where every one gets a passing grade...Does not like enthusiastic teachers...well organised lectures...instructor-individual interactions.
Participant	This style is characteristic of students who want to learn course content and like to go to class. They take responsibility for getting the most out of class and participate with others when told to do so. They feel that they should take part in as much of the class-related activity as possible and little that is not part of the course outline.	Lectures with discussion...opportunities to discuss material...both objective and essay type tests...class reading assignments...enthusiastic presentations of material...teachers who can analyze and synthesize material well.
Dependent	This style is characteristic of students who show little intellectual curiosity and who learn only what is required. They see teacher and peers as sources of structure and support. They look to authority figures for guidelines and want to be told what to do.	Teacher outlines or notes on the board...clear deadlines for assignments...teacher-centred classroom methods.
Independent	This response style is characteristic of students who like to think for themselves. They prefer to work on their own but will listen to the ideas of others in the classroom. They learn the content they feel is important and are confident in their learing abilities.	Independent study...self-paced instruction...problems that give the student an opportunity to think independently...projects that the students can design...a student-centred classroom setting rather than a teacher-centred one.

Modern research has identified several scientific and useful aspects of teaching styles that need to be adopted by our faculty in educational institutions. A famous study by Richard Mann in 1970 showed the following teaching styles which we need to study:

Teacher Styles

Expert : Transmits information, the concepts and perspectives of the field. Leans toward scholarly preparation of classes and is most comfortable in the role of presenting material and answering questions. Students' need for achievement can increase with this style, and they may fear appearing stupid or being "snowed" by teachers with this style.

Formal Authority : Sets goals and procedures for reaching goals. Defines structure and standards of excellence for evaluation of student performance. Style helps create dependency in students and students may fear failing or pursuing irrelevant activities.

Socializing Agent : Attempts to clarify goals and career paths for students beyond the course. Tries to help prepare students for the field. Acts as a guide and gate-keeper for the inner circle. With this style, students need to clarify their interests and fear being rejected by the field or having their options reduced.

Facilitator : Attempts to promote growth and creativity in students' own terms. Wants the students to overcome obstacles to learning and tries to respond to student needs. With this style students' self-discovery often increases but they can fear not developing a clear and useful identify.

Ego Ideal : Wants to convey the excitement and value of intellectual inquiry in a given field of study. Acts as a model for students to follow once they enter the field. With this style students tend to like having a model to follow, but there is a fear of being bored or unmoved.

Person : Wants to convey that teachers are people with a full range of human needs and skills. Tries to be self-revealing in ways that clarify one's totality beyond the task at hand. Encourages students to be warm and open. With this style, students generally appreciate the desire of the teacher to be a person and to want to know them as more than a student. A potential source of fear is that the student may be ignored or treated as a product.

We can imagine how primitive our education system will be in the absence of knowing and practising the findings of modern research on learning and teaching processes. Can we continue our mission by ignoring these vital elements of teaching and learning processes?

Our funds may come from any source and universities and colleges may be required to submit annual reports but the fact remains that the faculty alone decides who should be taught and what should be taught for how long. No other authority can decide about these issues. But how the classes be taught, what should be the impact of learning theories and research on learning in our teaching processes and enriching of 'how' elements through discussion among and participation by other teachers have remained conspicuous by their absence in our plans and actions. This gap has resulted in a disbalance between teaching and learning processes. Teachers have to work as a group participating in a close "give and take" sessions of knowledge and practices. We may make efforts to know about some modern research on various subjects like Economics, Physics, Poetry etc., but we do not bother about the research findings on the teaching of Economics, Physics, Poetry etc. The community of teachers suffers from relative isolation from each other on areas of developments in a subject and better ways of instructing. We do not show proper concern to psychic benefits that accrue by reaching the students fully and successfully. Each teacher devotes about three decades in teaching work and how poor the span is likely to be by not knowing and not practising as to what constitutes effective teaching and satisfying learning. Recent research on teaching has revealed that:

1. There is a particular set of effective teaching behaviour.
2. What are the thoughts, feelings and acts of a teacher while performing instruction in a class?
3. What are the expectations of a teacher while teaching?
4. What are the types of students?
5. What are the types of teaching goals?
6. What is the milieu in which teaching-learning takes place?

For centuries we have focussed only on the personal characteristics of a teacher. There are complex sets of variables in teaching-learning processes which obtained importance only during the later half of the twentieth century. The most prominent one is what is termed as 'teacher judgement' while instructing. The mental processes of a teacher while teaching have become important in relation to what one expects from students. And, above all, our teachers will have to know well about the students' response to a particular teaching. We cannot ignore this facet anymore. ☐

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A Weekly Chronicle of Higher Education

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CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
January 24, 1987	Seminar on Economics of Industrial Development	Participants will discuss Industrial policy, Industrial finance, Foreign Collaboration/Capital, Industrial marketing and capacity utilisation.	Symbiosis Society's College of Arts and Commerce, Pune.	Prof. N.B. Kangutkar Organising Secretary, C/o Symbiosis Society's College of Arts and Commerce, Senapati Bapat Road, Pune.
February 2-6, 1987	Short-term Course on Digital Methods for Satellite Data Use in Water Resources Quantification.	To acquaint the participants with the techniques of Image Processing and Digital Analysis of Landsat Data with special emphasis on the application of techniques to the fields of Water Resources, Pedology, Forestry, Earth Sciences and Mineral Resources.	Centre of Studies in Resources Engg., IIT, Bombay.	Dr. T.V. Pavate, Chief Project Engineer, Training Extn. & Project Cell, R.S.D. No. VI, C.S.R.E., Indian Institute of Technology, Powai, Bombay.
February 16-19, 1987	National Seminar on Crystal Growth and Characterisation of Advanced Materials for Solid State Applications	Topics to be covered are: Theoretical and Experimental aspects of crystal growth; Heat and Mass transport; Industrial Crystallisation; Rapid Solidification and Casting; Biological and Molecular Crystals; and Special Crystals—New Techniques and Instrumentation.	Crystal Growth Centre, Anna University, Madras.	Prof P. Ramasamy Convener, Third National Seminar on Crystal Growth, Crystal Growth Centre, Anna University, Madras.
February 23-27, 1987	Short term Course on Application of Digital M.S.S. and Thematic mapper data for quantification of Agricultural and Forest Resources.	To acquaint the participants with the techniques of Image Processing and Digital Analysis of Landsat Data with special emphasis on the application of techniques to the fields of Water Resources, Pedology, Forestry, Earth Sciences and Mineral Resources.	Centre of Studies in Resources Engg., IIT, Bombay.	Dr. T.V. Pavate, Chief Project Engineer, Training Extn. & Project Cell, R.S.D. No. VI, C.S.R.E., Indian Institute of Technology, Powai, Bombay.
February 25-28, 1987	Workshop on Structures for Nuclear Power Reactor Technology	To provide a forum to take stock of the present know-how in various civil and structural engg. aspects of nuclear power plant construction and to project the future needs for Research and Development in this area.	Department of Civil Engg., IIT, Madras.	The Coordinator, SNUPORT-REDECC 1987, Structural Engg. Laboratory, Department of Civil Engg., Indian Institute of Technology, Madras.
March 2-5, 1987	Seminar on Recent Advances in Concrete Construction	To provide an opportunity for exchange of experience amongst practising engineers, consultants, research workers and academics and to guide the research and development activities in the area of concrete construction.	Department of Civil Engg., IIT, Madras.	The Coordinator, SNUPORT-REDECC 1987, Structural Engg. Laboratory, Department of Civil Engg., Indian Institute of Technology, Madras.

Agenda for Universities

Hon'ble Shri S.B. Chavan, Chief Minister of Maharashtra, delivered the Convocation Address at the 74th Convocation of Nagpur University. While surveying the university scene in the country, Shri Chavan set forth the tasks that the Government and the Society expected the universities to accomplish. Excerpts of the Address are reproduced for wider audience.

Convocation

According to the University Grants Commission Report of 1982-83, the number of students seeking admission to Universities has been rapidly increasing. During 1982-83, nearly 31,32,000 students sought admission through 120 Universities. During 1981-82, the number of students was 29,52,000 whereas the number of Universities was 118. It means that, during one year, the number of students seeking admission to various Universities has gone up by 6.3 per cent. Every year, the Government is thus required to provide facilities for this rising number of students.

If we turn our attention to Women's Education, we may observe that during 1950-51, 40,000 girl students were admitted to Universities. In 1982-83, this number has gone up to 8,93,000. It means that during the last thirty years, the numerical strength of women candidates has increased twenty times. We can imagine how the sphere of college education has widened. Considering this enormous growth of students in our Universities, we have to determine our policy of university education in such a manner that our young men will be equipped to confront the challenges of the 21st century with an adequate measure of self-confidence. And, while framing this policy, we will have to take into account the future educational needs as also the availability of educational resources at our disposal.

On this occasion, it seems necessary to make special reference to the new policy of Education, recently declared by the Central Government. It is essential to understand the most significant aspect of the New Policy, especially from the stand point of higher education. For over-all development of students, higher education is expected to play a dynamic role. This aspect has been emphasized in the document regarding this new policy. During our own time, we have observed that all over the world, the horizons of knowledge are ever-widening. It is no exaggeration to say that there is something like explosion of knowledge. But, unfortunately, our universities have failed to keep pace with this rapid growth of knowledge. It is as if higher education has lost its social context. For a variety of reasons, the quality of university education has gone down. Time has come when we must do some introspection and consider all the issues with extreme care. The situation demands that we must now change our outlook towards education. In almost all fields, increasing demands for specialization are being made. Keeping this in view, we will have to restructure our courses and educational programmes. While framing the new national policy of education, special attention has been paid to this aspect. Taking into account the challenges and requirements of the 21st century, it has been decided to introduce vocational courses on a large scale. These courses would supplement the existing courses. It is essential that these vocational courses must be introduced at the middle school level. Moreover adequate facilities need to be provided for vocational courses at 'Plus Two Level'. In the New Policy of Education it has been decided that ten per cent of education will be vocationalized by 1990, and twenty five per cent will be vocationalized by 1995. The progress of vocational education in Maharashtra is uptill now satisfactory; but, in the coming years we will have to increase the pace of this growth and development. The resources and facilities of vocational training courses will have to be extended to rural sections. While the blueprint of this future development is being made ready, we should not allow ourselves to lose sight of the goal we have set before ourselves. In order to generate a sense of self-confidence among young men and women and also to enable them to reply on themselves, greater stress ought to be laid on the vocational education. I am quite confident that in this process Maharashtra will not only play a leading role but also set an example for others to follow.

While considering the New Policy of Education, we will be required to make special efforts in order to bring about a radical change in the methods of teaching. More and more audio-visual aids and electronic equipments will have to be used. Similarly, special attention will have to be paid to the things like increasing facilities for research, preparing tools and materials for effectively imparting instructions, and training of teachers. Immediate steps will have to be taken to stop further deterioration of the whole organisational set up of education. Universities will have to play a vital role in training the teachers in accordance with the requirements of the New Policy of Education.

As I have already said university education must be brought 'close' to the society, that is, it must restore its social context. It must develop consciousness among the masses about social, economic, cultural, ethical and spiritual values. To create a feeling of unity, universal and eternal values will have to be fostered through education. Our students must realise the value of manual labour. They must also understand what is meant by social committment. "Learn while you Earn" is the new concept which the universities must promote among students. I expect that universities will create the necessary congenial atmosphere for this purpose. We believe that education is the continuous process of human development. To make the students aware of their social obligations, it seems proper that national voluntary organisations must be set up.

The idea of Open University has gained a universal assent. These universities will prove a boon to those who cannot be accommodated in the existing set up. We are thinking about establishing one such open university in Maharashtra. Employed persons who desire to continue their education without going to colleges will be highly benefited by this university.

While talking about the New Education Policy, I must also make clear what the Government and people expect from the universities. The most important thing is that the relation between those who are associated with the working of the university and the students must be necessarily cordial. It is almost a prerequisite for good academic atmosphere that the relation between students and their teachers must be harmonious. Examinations must be conducted as per schedule. Results must be declared in time and they must be flawless. The rules and regulations of the university must be strictly observed. It is an important function of the university to

NAGPUR UNIVERSITY
1985-86

1. **Despite carving out Sagar, Jabalpur, Ravishankar and Amravati Universities out of the geographical area that was once served by Nagpur University, in 1985-86, 131 institutions including 104 affiliated colleges, 33 university departments and 3 colleges run by the University were functioning within its jurisdiction. As many as 52,335 students were on its rolls during the academic session 1984-85.**

2. **Chief among the newly introduced courses are Cellulose Technology, Microbiology, Exploration, Geochemistry, Home Science, Computer Science and Business Management at the undergraduate level and courses in Library Science, Travel and Tourism, Gandhian Studies etc., at the postgraduate level. Nagpur University plans to introduce shortly postgraduate courses in Journalism, Electronics, Computer Science, Commerce, and Physical Education.**

3. **Attempts are afoot to establish Sarva-dharma Pratishthan and Bouddhism Shiksha Pratishthan.**

4. **The University has two libraries. The main library is at the centre of the city and serves all students and citizens while the second library located in the university campus serves teachers, students and researchers.**

5. **The Department of Adult and Continuing Education has been started recently.**

6. **The university also runs**
   - **a Backward Classes Special Cell;**
   - **a Regional Sophisticated Instrumentation Centre;**
   - **an Inter-Institutions Computer Science Centre;**
   - **Courses to prepare Backward and Minority students for IAS and other competitive examinations;**
   - **a Raman Science Museum;**
   - **a Population Education Club; and**
   - **a Pharmacy Centre.**

make provisions for adequate research facilities. Many of our scientists often prefer to go abroad for further education and research. It is the need of the hour that we generate confidence among the brilliant young men. They should feel that equal opportunities for further education and research are also available in our country. The problem of brain drain can be solved if we really succeed in creating in our universities an atmosphere conducive to intellectual enterprise and blosoming of various capabilities of our young and bright students. I am quite confident that our young men will never even think of going abroad if they feel certain that they shall have all the opportunities in our own country for carrying out researches of the same kind and of the same standard; but the responsibility of creating this kind of atmosphere is essentially that of the universities. Once upon a time, Indian Universities were viewed as developed centres of knowledge and research. But, during the long interval, we have lost this reputation. And hence, while we are thinking about the creation of New India, we must not lose sight of this drawback of our universities. We must also see to it that our universities will function more effectively and efficiently.

In a developing country like ours, we are faced with numerous social and economic problems. Universities should promote researches which would prove to be beneficial to the society in general. I believe that we are confronted with these challenges. Universities must now come forward to make their students capable of facing these challenges. Our young men are not really lacking in intelligence. All that they need are the proper opportunities and we must make these opportunities available to them.

Financially, our universities must become self-sufficient. They should not rely too heavily on the government grants. They should create their own resources without taxing students or parents by increasing fees. The huge amount of expenditure on administration must be reduced. Especially stringent measures need to be taken in order to curtail unnecessary expenditure. It is not proper to restrict the scope of university education to a limited number of intellectuals. The university education must also indicate how knowledge can prove to be beneficial to ordinary human beings who can make use of it in their day to day life.

Education is a means of character building. While it is true that the horizons of knowledge are ever widening, the young generation must also come to know through education something about the culture and civilization of our country. Our culture is the sum total of all our internal qualities. This, in itself, is the real source of inspiration for the social life. This power of inspiration, which passes on from one generation to another, should lay down the foundation of our social behaviour.

Today we witness the degeneration of values in almost all walks of life. The chief reason for this degeneration is the lack of moral standards. Education is expected to create these standards. It must make human mind more developed, more cultured, and it must also inculcate love for virtues. In the final analysis, the purpose of education, whether at school or university level, is to mould and inform and elevate the human mind. Even a glance at different fronts of life such as political, economic and social would reveal that human mind has become extremely narrow and self-centred. Under the pretext of language, region, sect, caste and religion, human beings seem to embrace this kind of narrow mindedness. On the whole, the sense of superiority coupled with the dominant sense of regional egotism has seriously threatened the unity and integrity of our country. That is why I strongly feel that education must have, as its basis, the scheme of values. It is the need of the hour that education should promote and foster such values which will enable us to preserve our national culture, civilization, traditions and our national prestige, dignity and honour. □

CALENDAR OF EVENTS

Insertions for our column, Calendar of Events, are welcome. It will help early reporting of the event as also avoid unnecessary correspondence if the matter for insertion is submitted in our usual format under the heads: proposed dates of the event, title, objective, name of the organising department and name of the Organising Secretary/Officer to be contacted.

Philosophy, Peace and International Understanding

The Indian Council of Philosophical Research organised an International Seminar on Philosophy, Peace and International Understanding at New Delhi from 15th to 18th December, 1986. The keynote addresses were delivered by Professor D.P. Chattopadhyaya on 'War for Peace' and Dr. Raja Ramanna on 'Scientific Temper'.

Professor K. Satchidananda Murty, Vice-Chairman, University Grants Commission, delivered the welcome address and the valedictory address. The Seminar attracted participants from Canada, East Germany, France, Mexico, North Korea, Sweden, U.S.A., and U.S.S.R. Dr. Karan Singh, Prof. Hiltrud Rustau, Mr. K. Subrahmanyam, Prof. Bjorn Hettne, Prof. Weidemann and Dr. S.Z. Qasim were amongst the distinguished scholars that addressed the seminar.

We are reproducing below the welcome address by Prof. K. Satchidananda Murty that set the tone for the Seminar.

This seminar is significant in a number of ways.

It is being held in the last month of the International Year of Peace. While it has been conceived and is being organised by the Indian Council of Philosophical Research, a number of institutions are sponsoring it: the Indian Council of Social Sciences Research, Indian Council for Historical Research, the Indian Institute of Advanced Study and the UNESCO through its Indian National Commission. The University Grants Commission has associated itself with it.

More importantly, it is taking place after our Prime Minister and the Secretary General of the Communist Party of USSR have issued a joint call for an International convention banning the use or the threat of the use of nuclear weapons as a major concrete step towards complete nuclear disarmament. This joint call is an advance over the November 1985 agreement between Secretary General Gorbachov and President Reagan that as a nuclear war cannot be won it should never be initiated, because if the proposed convention materialises it will undermine the legitimacy of the nuclear weapons and will also be more effective as a moral force than the joint agreement.

Prof. Satchidananda Murty delivering the welcome address

We are having this interdisciplinary seminar, in which philosophers are expected to have a key role, soon after the leader of a superpower has declared that, "a new thinking in politics and a new philosophy of international relations" are urgently called for, and a leader of the Non-aligned Movement has responded that, "the profound richness and diversity of the Asian tradition, the ancient wisdom of our society" - provide "a starting point for a new pattern of peace, stability and development." (Banquet speeches at Delhi on November 25, 1986).

Today there are still some political scientists who have also been policy makers of great nations who think that "a world without nuclear weapons is an utopian dream" and to seek "nuclear disarmament is to seek a goal as risky as it is impractical". (James Schlesinger, **Timer,** October 27, 1986, p. 16). Therefore, they argue, that nuclear deterrence is the 'only moral choice' and that it has preserved peace between the two superpowers so far. (Alexander Haig, **Straits Times,** August 14, 1985). Such people seem to believe that as long as sovereign states with conflicting ideologies exist nuclear weapons are needed.

This is an old style of thinking which ignores the fact of the possibility of a nuclear holocaust. As the Report of the Scientific Committee on the Problems of Environment (Washington, 1985) pointed out, a nuclear war even if confined to the USA and USSR will have calamitous consequences for the entire world. As a direct result of such a limited nuclear war more that half the world's population would die from blast and radiation and the starvation on account of a nuclear winter. Even a limited nuclear war would lead to a nuclear winter because hostilities could throw up one hundred million tons of soot, cutting of sun's light and heat. Even if they are never struck by a nuclear warhead, millions of people in India, Africa and China would die because nuclear winter would end seasonal monsoons.

In a situation like this ideological differences should not be allowed to prevent dialogue and reconciliation. Leaders of the socialists countries have displayed much wisdom in this respect. One of them (Hu Yaobang) stated that, "ideology was not important" but practical conditions must be taken into account; while another (Gorbachov) asserted that "ideology and national and cultural distinctions" must not "hamper dialogue". Classical Indian Philosophy has always held that doctrines and faiths can and ought to be transcended to achieve harmonious and cooperative life. No philosophy or world view can be considered absolute and total.

Some thinkers have argued that peace understood as the maintenance of the existing status quo within and between nations may not be desirable if it prevents transformation of existing societies into just and equal societies. While there may be a basis for arguing that questions of equitable and adequate economic development and unfulfilled democratic tasks may require resort to violence to set things right, as there will be no human life after a nuclear war, for the realisation of a just and equal society and international order nuclear weapons can never be the means. So, even if the existing injustice and disparities within and among nations cannot be removed, as survival of humanity is a value in itself, nuclear security and disarmament are essential. Human beings have the right and need for freedom from the danger of the use of nuclear weapons, from the threat of their use and from the possibility of their use. So, they must cease to exist. Reverence for life, which all classical Indian Philosophies uphold as a high value, must be inculcated among all men. Moreover, Indian philosophy never conceived peace in a negative way, devoid of positive content. From the earliest times Shanti implied absence of evil, long life, prosperity, happiness, mental tranquillity and harmony. There is much in Indian thought about the content and essence of peace and the ways of achieving it.

Let us have "a new philosophy of international relations" incorporating "the profound richness and diversity of Asian tradition", and the best of Western thought. □

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DACCA SUMMIT AND SAARC : A BROAD OVERVIEW
—Dr. Pramod K. Mishra
SINO INDIAN RELATIONS : ROLE OF K.M. PANIKKAR
—Dr. Karunakar Gupta
BALANCE OF PAYMENT PROBLEMS OF SOUTH ASIAN ECONOMIES
—Dr. Neela Mukherjee
ECO-SYSTEM AND ETHNIC CONSTELLATION OF SIKKIM
—Dr. Mamata Desai
POPULATION GROWTH AND URBANIZATION IN SOUTH AND SOUTHEAST ASIA
—Dr. S.B. Mukherjee

Regular Publication:

ASIAN STUDIES—a quarterly journal focussing social, economic, political and linguistic aspects of contemporary South and Southeast Asia.

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which over 150 national and international scientists are expected to participate. A silver jubilee convocation is also proposed to be held in April. Efforts would also be made to strengthen further the relationship between the university and the farming community of Punjab. Dr. Sukhdev Singh said that scholarships would be awarded to the students. A sum of Rs. 7.56 lakh has already been made available to the University by Punjab Agricultural Marketing Board for the purpose.

Objectives of Teaching English in India

A Project to develop a comprehensive framework of 'Objectives of teaching Eglish in India' that would cover different levels and different categories of learners in a multilingual setting was taken up by the Central Institute of English and Foreign Languages (CIEFL) in 1986. This was at the instance of the Bureau of Languages, Ministry of Human Resource Development, and was to be a part of the wider discussion related to the New Education Policy. Preliminary discussion about the project as a whole led to the strategy of holding a series of short seminars which would bring together academics connected with formal education and professionals in various spheres.

The first National Seminar on Objectives of Teaching of English was held at CIEFL from 12-14 December 1986. Teachers of English from the universities of Madras, Bombay, Dibrugarh, Panjab and the Director of the ELTI (Orissa) participated in addition to CIEFL faculty. The seminar was inaugurated by Prof. S.K. Verma, Director, CIEFL.

The main aim of the seminar was to review and further develop existing statements of objectives. The following general issues were first considered. How are the needs of various categories of learners to be assessed and made the basis of course objectives? How are learning objectives to be formulated so that they provide effective guidance to the curriculum developer and the teacher? How can the different levels of proficiency related to introductory and advanced courses be systematically represented?

A review of typical statements of objectives for general English at the school, +2 and degree levels was taken up. It was found that statements of objectives are in formal terms and highly abstract in nature. Even when specific skills and behaviours are indicated the reference is to an idealized typical learner. There is no proper and adequate recognition of the wide range of levels of general ability and prior learning and the diversity of needs and of learning resources available that are encompassed in a formally designated category of learners. The importance of more adequate needs-analysis and more differentiation within broad objectives was noted.

A preliminary consideration of 'instruction' in English and related communication skills in non-university settings and of 'English in relation to other languages' was also taken up.

At the concluding session, suggestions for developing a comprehensive Working Paper on objectives, and for various field projects that need to be taken up urgently were noted. A second seminar with more participation from persons outside the field of formal education was proposed.

PAU Silver Jubilee Celebrations

The Punjab Agricultural University (PAU), Ludhiana will be celebrating its silver jubilee this year. At the inaugural function which was held recently, a silver jubilee emblem and annual publications were released by the Vice-Chancellor, Dr. Sukhdev Singh. To mark the occasion, an international crop improvement seminar would be organised in February at

Central Assistance for Anna University

The Ministry of Human Resource Development is reported to have sanctioned a sum of Rs. 45 lakhs to the Anna University for modernisation of its laboratories. This is said to be in addition to the grant of Rs. 55 lakhs sanctioned last year by the Union Government for strengthening infrastructural facilities in the areas of remote sensing, expansion of facilities in instrument technology and modernisation of electronics laboratory.

According to Vice-Chancellor, Dr. V.C. Kulandaiswamy, the University Grants Commission (UGC) has also sanctioned a financial assistance of Rs. 50 lakhs, spread over a period of five years, for strengthening the postgraduate teaching and research activities at the Centre for Water Resources in the University.

B.Tech. in Manufacturing Engineering

The Indian Institute of Technology, Delhi proposes to start a new B.Tech. course in Manufacturing Engineering and Management from the next academic session. The focus of the course would be on the latest production techniques, machine tools design and research in the field of manufacture and instrumentation.

According to Prof. R.C. Malhotra, Deputy Director of the Institute, to start with there would be no separate input for this course. Approximately half the students enrolled for the mechanical engineering degree will be shifted to the new course at least for the first batch of students.

M.Sc. Computer Software Programme

The M.Sc. Computer Software Programme in the School of Computer Sciences of the Andhra University was recently inaugurated at the Institute of Coastal and Offshore Research. Spread over a period of six years of operation, the course is sponsored by the Defence Research and Development Organisation (DRDO) with a financial assistance of Rs. 1.80 crores. Twentyfive candidates are selected through a national level entrance examination conducted by the College of Engineering of the Andhra University.

Hindi Prachar Sabha Plans P.G. Centre

The Dakshina Bharat Hindi Prachar Sabha proposes to set up a postgraduate Centre in Hindi at Dharwad. This would be the third Centre in South India. The Centre would impart teaching in Hindi at Postgraduate and M. Phil levels. A translation course is also proposed to be introduced. The Department of Electronics, New Delhi will supply the hardwares and softwares needed for the computerised translation course. The intake of students would be 40.

Mr. V. Anjaneya Sharma, Registrar of the Sabha, said that the Govt. of Karnataka had been approached for grant of 100-acre of land for the purpose- According to him, central government will bear the necessary expenses.

Five More IITs Needed

Mr. Rossi Mody, Chairman, TISCO, said that the out-turn of engineers, scientists and technocrats would have to be multiplied four to five times in the next 15-20 years to tackle the country's problems and to keep pace with the developmental activities for taking the country into the 21st century. To achieve this target, he felt, at least five more IITs would be needed. He said that technological developments and upgradation would have to take place at a rapid pace and there was no better training for that in the country than that provided by the faculty of the IIT.

West Bengal Plans Instt. of Correspondence Courses

The West Bengal Government proposes to set up an Institute of Correspondence Courses for those who have not received college education. The State Planning Board is reported to have been asked to work out the modalities for setting up this institute.

According to the proposal, about 5-6 acres of land at Salt Lake will be earmarked for the purpose. Initially the State Government is expected to spend Rs. one crore and for further requirement the Central Government is likely to be approached.

Degree Course in Homoeopathy

The University of Rajasthan is reported to have decided to conduct a five-and-a-half year degree course in homoeopathy from the next academic session. It has also accorded its affiliation to Dr. Madan Pratap Khunteta Rajasthan Homoeopathic Medical College and Hospital which was hitherto affiliated to the Central Board of Homoeopathy.

Tripura University

The Tripura University is expected to start functioning from the next academic session beginning July 1987. A Bill to this effect is likely to be introduced during the ensuing budget session of the State Assembly.

The University will be located in Agartala at the Centre of Postgraduate Studies now under the jurisdiction of Calcutta University.

3-Year Degree Course in Yoga

The Telugu University is reported to have decided to establish a new faculty of Yoga to introduce a three-year degree course in Yoga. The university has constituted an ad-hoc Board of Studies to draw up a syllabus for the course besides framing rules and regulations.

Prof. Wolfgang Nolting at Kakatiya University

Under the joint auspices of the West German Academic Exchange (DAAD) and the University Grants Commission, Prof. Wolfgang Nolting of the University of Munster is visiting the Department of Physics, Kakatiya University, Warangal, A.P.

Prof. Nolting, a theoretical solid state physicist, is the author of a couple of books and a number of research papers on magnetism. During his stay, Prof. Nolting will deliver a series of lectures on quantum theory of magnetism.

News from Abroad

Indo-USSR Joint Projects in Sanskrit Studies

India and the Soviet Union will undertake joint projects in Sanskrit as well as archaeological studies. It has been agreed to undertake "Comparative Study of Archaeology, History and Culture of Central Asia and India" and a project in Sanskrit studies in the USSR and India.

Apart from this, a group of Indian archaeologists will go to the Soviet Union for excavations in Uzbekistan and Turkmenia. Similarly, a Soviet archaeologists' team will visit India for excavations in certain areas of interest in medieval history. Works in this direction are expected to start soon.

Disclosing this Prof. Bongard-Levin, a leading Soviet Indologist and leader of the visiting delegation of the Soviet Indologists, said that the joint projects will throw more light on the history and traditions of India and Central Asia and lead to more valuable discoveries on classic India.

He said that Sanskrit studies in the USSR date back to the days of William Jones, founder of the Asiatic Society of Bengal, who visited the Soviet Union for the popularisation of Sanskrit, and the Soviet collection of Sanskrit scriptures, which are kept in the Leningrad Museum, one of the best in the world. The Leningrad Museum has got some of the rarest collections of Sanskrit and Buddhist scriptures, some of which are not available even in India.

Prof. Bongard-Levin said during the forthcoming Festival of the Soviet Union in India all the rarest materials, both archaeological and Sanskritic, will be exhibited. The Indian side is also expected to put on display ancient Sanskrit scriptures and archaeological specimens at the Festival of India in the USSR slated for 1987.

Both sides have also agreed to bring out joint publications of Sanskrit literature and albums. Already, about 200 titles of Sanskrit literature have been translated into Russian and plans are underway to translate more books from Sanskrit into Russian. They include the works of R.N. Sharma, Prof. Dandekar and Dr. Nagarjuna Rao, he said.

Talking about the activities of the International Association of Sanskrit Scholars, Prof. Bongard-Levin, who is also the Vice-President of the Association, said they are now concentrated mainly on the publication of rare manuscripts. The Association will hold its next conference in Netherlands in 1987.

Prof. R. Munchaev, Deputy Director of the Institute of Archaeology of the Academy of Sciences of the USSR, said the Association of Indian and Soviet Archaeologists had held two symposiums, one at Allahabad and the other in Ashkhabad (capital of Turkmenia). The third symposium will be held in India in 1988 and the focus will be on Kushan period.

Sports News

Five New Records at Varsities Athletics Meet

Punjabi University, Patiala retained the men's team title while Calicut University won the women's team honours for the 3rd successive year at the 47th All-India Inter-University Athletics Meet which concluded at Allahabad University on Jan. 1, 1987.

Long distance runner Bhimlal of Allahabad University and thrower Gurmeet Kaur of GNDU won the individual titles in the men and women sections respectively. Bhimlal who earned Gold Medal in 20km. Road Race and 10,000 Metres run besides a Silver in the 5000 metres race had a tally of 13 points. Gurmeet Kaur claimed Gold Medals in Discus Throw, Shot Put and Javelin Throw. She won a total of 15 points.

In all 5 new records were established at the Meet which attracted 1065 athletes from 92 universities. Four of the new Meet records were established by the women athletes. Gurmeet Kaur set a new record in Discuss Throw with an effort of 42.82 mts. Dolly K. Joseph of Calicut clocked 14.4 Sec. to set a new mark in the 400 metres Hurdles. The other records were set by Meena Gopal of Madras in the 100 metres Hurdles and Heptathlon. The lone men's record was set by Kamalpreet Singh of GNDU with a throw of 52.08 metres in the Discus event.

Shri K.C. Pant, Union Minister of Steel and Mines gave away the prizes to the individual winners and awarded trophies to the winning teams. Speaking on the occasion he emphasised the need for promotion of sports which is so important in brining about national integration in the country.

Action Photograph

Best Individual athlete Bhimlal receiving the trophy from Mr. K. C. Pant

47th Inter-University Athletics Meet

Allahabad University

(28 Dec. 1986–1 Jan. 1987)

Punjabi Varsity athletes receiving the Men's Championship Trophy from Mr. K. C. Pant

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ADMISSION PROCEDURE: Admission will be made on the basis of written and oral examinations. Written test will be held at Coimbatore and Madras on March 8th, 1987. The successful candidates will be called for the personal interview at Coimbatore.

FEES AND OTHER EXPENSES: The fees for the programme will be Rs. 1,500/- per year, plus an examination fee of Rs. 1,500/- and caution deposit of Rs. 250/-.

HOW TO APPLY: Application forms and details can be obtained from **The Registrar, Bharathiar University, Coimbatore-641046** on payment of Rs. 60/- by an Account Payee Demand Draft only. SC/ST candidates have to pay only Rs. 10/- provided they submit an attested copy of community certificate along with the request for applications

Last date for receiving filled in Applications Forms .. **February 20, 1987**

Written Examination .. **March 8, 1987.**

REGISTRAR

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Javdani, Yekta Rajabali. *Two dimensional boundary layer problems in porous media.* Shivaji. Dr. B.B. Waghmode.

2. Kubde, Manohar Krishna. *Complex categories.* Shivaji. Dr. H.V. Kumbhojkar.

3. Kumar, S. *Automatic deduction in the field of artificial intelligence.* Sathya Sai. Dr. Prabhakar Rao.

4. Lukose, Sunny. *Graph theory.* Kerala. Dr. Cicily Zacharias.

5. Mohan Singh. *Hydro mechanics.* BHU. Dr. Naveen Kumar.

6. Ramakrishnan, R. *Fuzzy set representation with personal comparison of individual preferences.* Sathya Sai. Dr. C.J.M. Rao.

7. Sharma, Chhaya. *A study of hypergeometric functions of four variables.* Devi Ahilya. Dr. R.N. Jain and Dr. C.L. Parihar.

Physics

1. Bhagwat, Mandar Shashikant. *Certain investigations on gravitational phenomenon and relativistic plasmas.* Shivaji. Dr. K.L. Narayana.

2. Kane, Shashank Narayan. *Mossbauer and magnetic studies of some metallic glasses and metal chelates.* Devi Ahilya. Dr. Ajay Gupta.

3. Patil, Pramod Shankarrao. *Studies on some oxide semiconductors and their use in rechargeable liquid junction solar cells.* Shivaji. Dr. S.H. Pawar.

4. Yadav, Sita Ram Singh. *E-theory of molecular liquid and liquid crystals.* BHU. Dr. J. Ram.

Chemistry

1. Anilkumar, K. *Synopsis of chemotaxonomic study of a few members of asclepiadaceae with focus on the chemistry of taxonomically significant secondary metabolites.* Sathya Sai. Dr. N.R. Krishnaswamy.

2. Babu, S. *Kinetic studies of solvolytic reactions.* Kerala. Dr. M. Rajasekharan Nair.

3. Balasubramanian, S. *Studies on the chemistry of some useful colour reactions and spot tests and development of a micro-analytical technique of qualitative analysis of plant and insect extractives.* Sathya Sai. Dr. N.R. Krishnaswamy.

4. Basak, Devashish. *Synthesis and characterisation of metal complexes.* BHU. Dr. A.K. Ghosh.

5. Elizabeth, K.I. *Thermal decomposition of solids.* Kerala. Dr. C.G. Ramachandran Nair.

6. Lonibala Rajkumari. *Magnetic and spectral studies of transition and mixed metal complexes.* BHU. Dr. T.R. Rao.

7. Madhale, Rabika Dattatraya. *Studies on electrolytes and their use in rechargeable liquid junction solar cells.* Shivaji. Dr. S.H. Pawar.

8. Manoharan, K. *Synthetic studies in oxygen heterocyclics.* Sathya Sai. Dr. N.R. Krishnaswamy.

9. Pandey, Surendra Nath. *Organic reagents in organic analyses.* BHU. Dr. A.K. Ghosh.

10. Pawar, Baburao Nivrutti. *Study of β-diketone complexes and their biological activity.* Shivaji. Dr. M.B. Hogale.

11. Rampure, Rajendra Sharanappa. *Structural studies of transition metal complexes of biologically significant ligands.* Shivaji. Dr. C.K. Bhaskare.

12. Sagar, Thusha. *Synthesis of peptides on solid phase support.* Kerala. Dr. P.K. Rajan.

13. Singh, Raj Narayan. *Corrosion of stainless steels.* BHU. Dr. V.B. Singh.

14. Ushakumari, B. *Studies on some carboxylates of lighter lanthanide metals.* Kerala. Dr. P. Indrasenan.

Earth Sciences

1. Yadav, Chandra Jeet. *Sedimentology of Tal, H.P.* BHU. Dr. R.N. Tiwari.

Engineering & Technology

1. Dubey, Rajachwar. *Functional analysis of large power system network in real mode.* BHU. Dr. D.S. Chauhan and Dr. Nand Lal.

BIOLOGICAL SCIENCES

Biochemistry

1. Chellammal, S. *Biochemical investigation on dietary fibres.* Kerala. Dr. P.A. Kurup.

2. Sherief, P.M. *Biochemical investigations on fresh water fishes.* Kerala. Dr. P.A. Kurup.

Botany

1. Gupta, Krishan Chand. *Tracheid length variation in West Himalayan spruce, Picea smithiana (Wall) Boiss.* HP.

2. Kapil, Manju. *Cytomorphological and biochemical studies in natural populations of Rubus ellipticus Sm. in Himachal Pradesh.* HP. Dr. (Miss) S. Mann.

3. Kulkarni, Hemalata Dattatray. *Studies in physiology of salt tolerance in Moth bean, Phaseolus econififollius Jacq.* Shivaji. Dr. B.A. Karadge.

4. Om Prakash. *Specific gravity variation in West Himalayan Spruce, Picea smithiana (Wall) Boiss.* HP. Dr. M.K. Seth.

5. Raj Kumar. *Physiological and biochemical basis of rooting in hypocotyl cuttings.* HP. Dr. V.K. Rai.

6. Rashpal Singh. *Studies on seed dormancy in some Himalayan tree species.* HP. Dr. V.K. Rai.

7. Salunkhe, Shanta Shankarrao. *Physiological studies in Dodonaea viscosa L. grown under stress conditions.* Shivaji. Dr. B.A. Karadge.

8. Sharma, Uma. *Studies on drought physiology: Accumulating metabolites and water balance.* HP. Dr. V.K. Rai.

9. Sheikh, Sweet Sultana. *Studies on the photocontrol of betacyanin synthesis with reference to plant hormones.* Devi Ahilya. Dr. K.N. Guruprasad.

10. Singh, Kiran Vir. *Role of amino acids in drought physiology.* HP. Dr. V.K. Rai.

11. Wagela, Dilip K. *Assessment of air pollution effects on plants and soil in and around Indore due to automobile emission.* Devi Ahilya. Dr. K. Pawar.

Agriculture

1. Durgesh, M. *Studies on the effects of herbicides on growth and metabolism of Arachis hypogaea and its microbial environment.* Sathya Sai. Dr. A.V. Lakshminarasimham.

2. Mishra, Om Prakash R. *Effect of mulching and antitranspirants on yield and yield contributing characters of rainfed wheats.* Devi Ahilya. Dr. Y.M. Upadhyay.

3. Sureshkumar, P.V.S. *Studies on the interaction of carbendazim: A systemic fungicide on the host parasite relationship of tikka disease of groundnut.* Sathya Sai. Dr. A.V. Lakshminarasimham.

Zoology

1. Deshpande, Sudhakar Gopal. *The action of different-classes of modern pest-control agents on selected biochemical constituents of insects.* Shivaji. Dr. R.N. Sharma.

2. Ghumare, Surekha Sadashiv. *Investigations into selected physiological and biochemical responses of some insect pest to conventional and newer types of pest control agents.* Shivaji. Dr. R.N. Sharma.

3. Gund, Pushpa Dutta. *Effect of selected plant biochemicals and synthetic growth regulators on the growth behaviour, physiology and development of three species of mosquitos.* Shivaji. Dr. R.N. Sharma.

4. Jain, Sunil Kumar. *Chemical control of insects, their metabolism and toxicity.* HS Gour. Prof. G.C. Jain.

5. Khatavkar, Ramesh Shriniwas. *Reproductive biology of scorpions: A comparative study.* Shivaji. Dr. N.K. More.

6. Manne, Venkata Santhkumar. *Behavioural studies of the braconid parasitoids of lepidopterous pests on chickpea and pigeonpea in relation to reproduction.* Shivaji. Dr. T.V. Sathe.

7. Mishra, Rang Nath. *Biochemistry of aging.* BHU. Prof. M.S. Kanoongo.

8. Murali Krishna, Mutyala. *Reproductive physiology.* BHU. Prof. C.J. Dominic.

9. Mukherjee, Samindra Nath. *A study of some insect resistant plants and their products as sources of biorational pest control agents.* Shivaji. Dr. R.N. Sharma.

10. Pathak, Kavita. *Kinetics and regulatory mechanism of enzymes.* BHU. Dr. P.K. Srivastava.

11. Ravi Shankar, K. *Impact of heavy metal pollution on fish in river Ganga.* BHU. Dr. A.K. Mittal.

12. Singh, Sanjaya. *Biochemistry of aging.* BHU. Prof. M.S. Kanoongo.

13. Singh, Udai Pratap. *Mammalian reproduction.* BHU. Dr. A. Krishna.

14. Tare, Vrushali Shirish. *Comparison of some natural products from Indian forests and selected biologically active synthetic compounds as sources of newer types of insect control agents and their mode of action.* Shivaji. Dr. R.N. Sharma.

15. Vartak, Prakash Hari. *An investigation into some possibilities of pest management by insect behaviour manipulation.* Shivaji. Dr. R.N. Sharma.

Medical Sciences

1. Sisodia, Kamal Singh. *Studies on human and animal body fluids using lectins as reagents.* HS Gour. Dr. H.S. Maheshwari.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Baidya, Sriharsha. *(W) proximally continuous functions and related integrals.* NBU.

2. Bhargava, Manju. *Classical and modified multivariable Hfunctions as kernels of generalized integral transforms and their application.* BHU.

3. Biswal, Sadasiva. *Physics of flow and heat transfer in some non-newtonian fluids.* Utkal.

4. Das, Indra Kant Lal. *Application of finite element techniques to specific potential flow problems in fluids.* Magadh.

5. Malhotra, Rita. *Allocation problem paradigms with an emphasis on multi-decisions.* Delhi.

6. Mukherjee, Sanchita. *Some multiple hypergeometric polynomial sets : Special functions of complex analysis.* BHU.

7. Narsimha Reddy, K. *Periodic boundary value problems for second order nonlinear differential systems.* Osmania.

8. Palanichamy, P. *Some results on compact group actions.* Jammu.

9. Shyam Lal. *Certain contributions to the study of summability of fourier series and allied series.* BHU.

10. Singh, Harihar Prasad. *Some geometrical investigations in M.F.D. flows.* BHU.

11. Yadava, Krishna. *Certain multivariable polynomial sets connected special functions : Special functions of complex analysis.* BHU.

Statistics

1. Pandya, Radha. *Limiting distribution in a randomised occupancy model.* BHU.

Physics

1. Appa Rao, B. *X-ray studies on thermal expansion and debye temperatures of Laves phase rare earth dialuminides.* Osmania.

2. Bagchi, Samarendranath D. *Enhancement of heat transfer in some fluids.* Nagpur.

3. Bhattacharjee, Ramendu. *Distortion induced IR and raman activity and related aspects of vibrational dynamics of molecular units in crystals.* NEHU.

4. Johrapurkar, Dilipkumar N. *Study of acoustic and elastic behaviour of some solids.* Nagpur.

5. Kalyan Singh. *Equilibrium theory of liquid crystals : Curvature elasticity in nemarics and isotropic-nematic transition.* BHU.

6. Mahapatra, Padma Charan. *A few aspects of interatomic-interactions.* Sambalpur.

7. Parakh, Nihal Chand. *Study of some properties of* $A^{x}B^{vi}$ *compounds (x-II tov).* Rajasthan.

8. Patgiri, Karuna Kanta. *Fission track ages of some of the pegmatites and granites from greater Gauhati and its surroundings.* Gauhati.

9. Raina, Kanwal Krishan. *Studies on crystal growth in silica gels: Characterization and thermal behaviour of some rare earth tartrates and molybdates.* Jammu.

10. Raj Narain. *Thermal conduction in two phase porous systems at interstitial pressures.* Rajasthan.

11. Rangachar, M.K. *NQR studies of certain molecular complexes.* Bangalore.

12. Ray, Gouri Sankar. *Stress analysis and optimum design of rotors in radiate flow machines.* Burdwan.

13. Roy, Kamlendra Pd. *Temperature and pressure dependence of thermal conductivity of semiconductors and insulators.* BHU.

14. Saraswat, Ashok K. *A study of conductivity and dielectric behaviour of some silver superior conductors.* IIT, Delhi.

15. Satbir Singh. *Effect of tetravalent impurities on the microstructure, magnetic and electrical properties of* $Ni_{0\cdot58}\,Zn_{0\cdot40}\,Fe_{2\cdot04}\,O_{4+8}$ *gerrite system.* IIT, Delhi.

16. Sharma, Ram Gopal. *Study of thermal diffusion through two phase porous systems.* Rajasthan.

17. Singh, Nand Lal. *Pre-equilibrium neutron emission in alpha particle induced reactions.* BHU.

18. Tiwari, Ayodhya Nath. *Spray-pyrolised copper-Indium sulphide films for photovoltaic applications.* IIT, Delhi.

19. Zadgaonkar, A.S. *Investigation of dynamic properties of non-conducting engineering materials using electrical analogy.* Ravishankar.

Chemistry

1. Behera, Suryamani. *Kinetic studies of the oxidation of sulphoxides used in solvent extraction.* Utkal.

2. Bharamgoudar, T.D. *Spectrochemical investigations for some metal complexes.* Gulbarga.

3. Das, Bibhasranjan. *Lanthanide complexes of schiff bases.* Burdwan.

4. Das, Susanta. *Studies on ion-solvent interactions of electrolytes in solution.* NBU.

5. Datta, Kalpana. *Kinetics and mechanism of substitution of aquoligands from cisdiaque (ethylenediamine) cobalt (III) ion by bidentate ligands.* Burdwan.

6. Dutta, Uttara. *Synthesis of some new heterocyclic compounds as potential antifungal and antibacterial agents.* Delhi.

7. Gautam, Rakesh Kumar. *Studies in the chemistry of 1, 4 benzothiazines.* Rajasthan.

8. Giridhar Reddy, K. *Physico-chemical and analytical studies of transition metal complexes.* Krishnadevaraya.

9. Gopalakrishna Iyer, T.S. *Studies on the bacterial flora of public health significance with particular reference to some pathogenic organisms in shrimps.* Kerala.

10. Gopalakrishnan, M. *A chemical investigation on the quality aspects of tree spices with special reference to essential oils.* Kerala.

11. Goyal, Muni Raj. *Kinetics and mechanism of redox reactions involving hyponitrite as a reductant.* Rajasthan.

12. Harod, Raju. *Synthesis and reactions of halogenocarbonyl compounds.* Vikram.

13. Khan, Israr Ahmad. *Synthesis and structural studies of lanthanide metal complexes of ligands containing O and N-donor atoms.* BHU.

14. Krishna Moorthy, A. *Salt effects in the solvolysis of benzyl chlorides in water.* Kerala.

15. Kunju, Kamala. *New heterocycles derived from 2-aminobenzothiazoles, 2-aminopyrimidines and 3-aminoisoxazoles.* Osmania.

16. Mahipal Reddy, B. *Studies on supported and promoted molybdenum hydrodesulfurization catalysts.* Osmania.

17. Malla, Jawahir Lal. *Analytical studies of transition metal complexes.* Jammu.

18. Mittal, Saraswati. *Synthesis and physico-chemical studies of some lanthanides complexes with substituted benzimidazoles.* Rajasthan.

19. Parekh, Devanand Chimanlal. *Studies on co-ordination compouds.* Bhavnagar.

20. Patel, Hemantkumar Gamanlal. *New polyesters.* Patel.

21. Prasad Rao, Ch. *Studies on natural and synthetic heterocyclics of physiological interest.* Osmania.

22. Ram Mohan Rao, M.V. *Study of interaction and other physico-chemical parameters of solvents and polymeric materials used in organic coatings.* Osmania.

23. Rawlley, Rakesh Kumar. *Hexamethylenimine carbodithioate-complexation behaviour and analytical applications.* IIT, Delhi.

24. Roy, Chandrima. *Some analytical uses of anilides of mercaptoacids.* Burdwan.

25. Sandeep Kumar. *Chemical investigation of medicinal plants.* BHU.

26. Sastry, Nandhibatla Viswanadha. *Colloidal behaviour of block copolymers in dilute solutions.* S. Gujarat.

27. Satyanarayana, K. *Synthesis and utility of Diels-Alder derivatives of diterpene resin acids.* Osmania.

28. Satyanarayana Rao, M. *Chemical studies in some alicyclic systems.* Osmania.

29. Sen Reddy, V. Vijay. *Preparation and characterization of tertiary phosphine and arsine and arsine ligands and their transition metal complexes.* Bhavnagar.

30. Shailaja Rao, J. *Studies on the reactivity of azoles with dihalocarbenes.* Osmania.

31. Shandilya, Pramila Rani. *Chemistry of some tin-oxygen bonded and allied compounds.* Rajasthan.

32. Sharma, Mahesh Chandra. *Studies on natural products.* Rajasthan.

Earth Sciences

1. Hasan Ahmed. *On the erosional aspects of the Brahmaputra River around Maijan and Mathola, Dibrugarh District, Assam: A geological study.* Gauhati.

2. Manju Kumari. *A study of pollutant dispersal in urban terrains.* IIT, Delhi.

3. Nagori, Madan Lal. *A study of Ostracoda from the Quilan beds, Kerala, South India.* Rajasthan.

4. Sankaranarayana, India. *Hydrogeology of Mukunda and Bhagaband blocks, eastern part, Jharia coalfield, Bihar.* ISM.

5. Sarathy, P.B.V. *Petrological and geochemical investigations on the granulities and associated gabbros around Valaparla-Sazzapuram, Guntur District, A.P.* Osmania.

6. Sud, Indu. *Some experimental and theoretical studies related to the transport of carbon dioxides in the circulatory system in simulated deep sea environment.* IIT, Delhi.

Engineering & Technology

1. Dake, Sujata B. *Characterization of PTFE and pan for electron multipliers.* Poona.

2. Dixit, Anand V. *Characterization of conducting PZT for continuous dynode.* Poona.

3. Gopalsamy, P. *Study on interconnected grid systems.* Madurai.

4. Indrajit. *Theory and applications of evacuated tubular solar energy collectors.* IIT, Delhi.

5. Kapoor, Surendra. *Oil spill prevention, behaviour control and clean up studies.* ISM.

6. Kaudinya, Jaivir. *Thermal design and parametric studies on an open cycle absorption solar cooling system.* IIT, Delhi.

7. Mohammed Abdul Rasheed. *Security monitoring of large scale electric power systems.* IIT, Delhi.

8. Panicker, K. S. Mohanachandra. *Microprocessor-based variable structure power system stabilizer.* IIT, Delhi.

9. Sayed Mohammed Haider. *An investigation of some rolling processes.* IIT, Delhi.

CLASSIFIED ADVERTISEMENTS

REGIONAL RESEARCH LABORATORY

JORHAT : ASSAM

(Council of Scientific & Industrial Research)

Advertisement No. 1/87

Applications in the prescribed forms (available free of cost from the Administrative Officer, Regional Research Laboratory, Jorhat-6 (Assam) on sending a self address big envelope affixing 0.45 paise stamp with a written request stating advertisement number and name of the post) are invited from candidates for the following position for R.R.L., Jorhat.

(A) Scientist 'B' (Oil Field Chemicals) 1 post (Reserved for S/C)

Scale of pay : 700-40-900-EB-40-1100-50-1300/-.

E.Q. : M.Sc. 1st class/Ph.D. in Inorganic Chemistry/Physical Chem. Preference will be given to candidates having R & D experience in Oil field chemicals/Co-ordination chemistry/surfactants/industrial chemicals.

J.R. : To participate in the R & D works on the process development of chemicals.

(B) Scientist 'B' (Instrumentation)
1—post (Reserved for S/T).

Scale of pay : 700-40-900-EB-40-1100-50-1300/-.

E.Q. : 1st class B.E. or B. Tech. in Electronics, Instrumentations or Telecommunication Engineering.

Desirable : Experience in servicing of Digital and Micro Processor based Instruments or Development of Analytical Micro processor based process control Instruments.

(C) Scientist 'B' — 1 Post
(Paper & Boards).

Scale of pay :- 700-40-900-EB-40-1100-50-1300/-.

E.Q. : B.E./B. Tech. 1st class in Pulp & Paper Technology or M.Sc. 1st class in Organic Chemistry.

J.R. : The candidate must have aptitude for carrying out R & D work in the field of Pulp and Paper Technology, Agrowaste and their utilization, speciality and coated paper etc. Have to undertake time bound project under senior scientist.

(D) Scientist 'B' Or 'C' — 1 Post
(Organic Chemistry).

Scale of pay : 700-40-900-EB-40-1100-50-1300/- **OR** 1100-50-1600/-.

E.Q. : 1st class M.Sc./Ph.D. in Organic Chemistry with research and development experience in synthetic heterocyclic chemistry. The person selected will have to work in any of the areas of drugs and Pharmaceuticals and pesticides. Preference will be given to candidates with a Ph.D. degree.

A candidate applying for Scientist 'C' should have Ph.D. degree with R & D experience for at least 2 years in the areas mentioned above.

General

(i) Higher starting salary may be given to exceptionally qualified and experienced candidates on the recommendation of the Selection Committee.

(ii) In addition to basic pay, dearness allowance is admissible as per CSIR rules in force. Total emoluments at the minimum of the Scale will be Rs. 1928/- **for Scientist 'B' and Rs. 2780/- for Scientist 'C'** (Pay scale is being revised on the basis of the 4th Pay Commission award). Free medical treatment, leave travel concession, pensionary benefits etc. are also admissible as per rules.

(iii) The reserved vacancies are also open to general candidate. The general candidates will be appointed only if no suitable Scheduled Caste/Scheduled Tribe candidates are available to fill-up the reserved vacancies.

(iv) Persons who are already in Govt./Semi Govt. Organisation should apply through proper channel. Candidates are required to specify and attach documentary evidence (attested copies) of E.Q. & Exp. claimed.

(v) The application in the prescribed form together with crossed postal order of Rs. 8/- (in case of general candidates) payable to the Director, RRL-Jorhat-6 (Assam) should reach him by **6-2-87** SC/ST candidates need not pay any fee (IPO) alongwith their applications.

Applications received after **6-2-87** will not be entertained. Candidates called for interview will be paid 2nd class railway fare by the shortest route for the to & fro journey.

(vi) Since it is not possible to call all the eligible candidates for interview, the applicants to be shortlisted for the purpose and the decision of the Laboratory will be final in this regard.

(vii) INDIAN CANDIDATES APPLYING FROM FOREIGN COUNTRY MAY SEND THEIR APPLICATIONS UPTO FORTNIGHT AFTER THE NORMAL CLOSING DATE IN STANDARD APPLICATION FORM SUPPLIED BY OUR MISSIONS ABROAD AND WITHOUT APPLICATION FEE.

(viii) Canvassing in any form and/bringing in any influence, political or otherwise, will be treated as disqualification for the post.

INTERIM ENQUIRIES WILL NOT BE ATTENDED TO.

SARDAR PATEL UNIVERSITY

Vallabh Vidyanagar-388 120 (Gujarat)

Notification No. EST/6 (1986-87)

Date : 31-12-1986

Applications are invited in the prescribed forms available from the University Office on payment of Rs. 5/- in cash or by Indian Postal Order for the following posts so as to reach the undersigned on or before 31-1-1987.

1. Professor each in :

(1) Computer Science (For Master of Computer Application Course)

(2) Commerce (Business Management preferably M.B.A.)

(3) Chemistry (Physical/Polymer)

Scale of Pay : Rs. 1500-60-1800-100-2000-125/2-2500.

2) Reader each in :

(1) Chemistry (Industrial)

(2) Home Science (Foods and Nutrition) (Two posts).

(3) Commerce (Two posts)

(One post with Specialization in Marketing Management)

(4) Sanskrit

(5) English

Scale of Pay : Rs. 1200-50-1300-60-1600-Assm-60-1900.

3. **Lecturer each in :**

(1) Chemistry (Theoretical)

(2) Mathematics

(3) Microbiology

(4) Education (Preference will be given to candidates specialised in Advanced Educational Psychology or Advanced School Administration at M.Ed.).

(5) Economics (with entire Economics at M.A.)

Scale of Pay : Rs. 700-40-1100-50-1300-Assm-50-1600.

4. **Deputy Accountant : Scale** Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200.

5. **Assistant Curator for University Museum (Temporary) Scale** : Rs. 500-25-650-EB-25-750-EB-30-900.

6. **Jr. Technician 'A'** (Electronics): **Scale:** Rs. 425-15-500-EB-15-560-20-700-EB-25-750.

7. **Workshop Mechanic : Scale :** Rs. 380-12-440-15-470-EB-15-560-EB-20-600.

8. **Research Associate in Hindi :** (Linguistics and Stylistics) (Temporary) **Scale:** Rs. 1800 Fixed.

9. **Professional Clerk for Bhaikaka** Library (Temporary) Scale: Rs. 600 Fixed.

10. **For G.H. Patel Computer Centre**

(1) **System Engineer : Scale :** Rs. 1100-50-1300-EB-60-1600.

(2) **Programmer : Scale :** Rs. 700-40-980-EB-40-1100-50-1200-EB-50-1300.

(3) **Machine Operator** (Two Posts) : **Scale** : Rs. 425-15-500-EB-15-560-20-600-EB-20-700.

(4) **Tape Disc Librarian : Scale :** Rs. 330-10-380-EB-12-440-EB-15-560.

Details of the prescribed equalifications will be supplied alongwith the application forms.

All the posts except at Sr. Nos. 5, 8, and 9 carry the benefits of Dearness allowance, Provident Fund, Gratuity and Pension Scheme as per University rules. Post at Sr. No. 5 carries the benefit of Dearness allowance only.

Preference will be given to the qualified candidates belonging to Scheduled Castes, Scheduled Tribes, Socially and Educationally and/or Economically backward class. Candidates belonging to these castes must attach a certificate from appropriate authority.

R.C. Thakkar
REGISTRAR

PANJAB UNIVERSITY

Chandigarh

Corrigendum to Advertisement No. 11/86

The post of Professor in Zoology (Cell Biology) as advertised vide Advertisement No. 11/86 be read as Professor in Zoology (CELL BIOLOGY/ENTOMOLOGY).

SAURASHTRA UNIVERSITY

RAJKOT-360005

Applications in the prescribed forms are invited for the undermentioned posts. Application forms alongwith detailed requirement of qualifications, experience and other necessary details regarding these posts will be available from the Registrar, Saurashtra University, University Campus, Kalawad Road, Rajkot-360005 on sending a self addressed envelope of the size 23 x 11 cms. with postage stamps worth Rs. 3.80 paise for the post Nos. 1 to 4 and Rs. 1.40 paise for the remaining posts. Applications seven copies for the post Nos. 1 to 4 and one copy for the remaining posts should reach this office on or before **5-2-1987** along with crossed Indian Postal Order worth Rs. 10/- for the post Nos. 1 to 5 and Rs. 5/- for the remaining post. Qualifications—experience and specialization as mentioned in the details to be supplied with application form will be considered final.

1. **Lecturer in Statistics — 1**

2. **Lecturer in Biosciences — 1** Basic degree in Botany/Zoology/Biosciences. Specialization in any branch of Biology, but preference will be given to specialization in Morphology and Systematics or Cytogenetics.

3. **Statistician — 1** M.Sc. in any branch of Biology/Mathematics/Statistics with specialization in Biometrics. Pay Scale Rs. 700-40-1100-50-1300.

4. **Research Associate — 1** M.Sc. atleast Higher Second Class in any branch of Biology with atleast three years of research experience in Terrestrial Ecology including animal behaviour or — Ecophysiology. Post is for five years which may be extended. At Rs. 1400 or Rs. 1600 fixed per month depending upon the qualifications and experience. Ph.D. is desirable.

5. **Junior Research Fellow — 2.** Temporary for a period upto three years which may be extended. National Examination Test (NET) candidates will be paid Rs. 1000 fixed per month, others Rs. 800 fixed per month. Candidates must be M. Sc. in atleast Higher Second Class in branch of Biological Sciences/Geology/Biochemistry/Microbiology.

6. **Field Assistant — 1.** B.Sc. I class or M.Sc. Higher Second Class in any branch of Biological Sciences. Pay Scale Rs. 260-6-308-EB-6-326-8-350-EB-8-390-10-400.

Post Nos. 1, 2, 3 and 6 are permanent. Post Nos. 3 to 6 are for the U.G.C. Department of Special Assistance in Biosciences. Age ordinarily not exceeding 55 years for post Nos. 1, 2, 4, 5 and 45 years for the remaining posts. The age, educational qualifications and experience may be relaxed in suitable cases.

Pay scale for the post Nos. 1 and 2 : Rs. 700-40-1100-50-1300-assessment-50-1600.

R.A. Desai
REGISTRAR

BUNDELKHAND UNIVERSITY

JHANSI

Corrigendum

In continuation of the advertisement published on dated **29-11-1986**, it is hereby notified that the last date for the receipt of the applications for the post of Professor, Reader and Lecturer in the different four Departments of the University is extended upto **27-1-1987**.

Ram Surat
REGISTRAR

ALIGARH MUSLIM UNIVERSITY
ALIGARH

Advertisement No. 19/86-87 **Dated : December 17, 1986.**

Applications on the prescribed form are invited for the following posts:

Professors

Scale of pay: Rs. 1500-60-1800-100-2000-125/2-2500 plus allowances

1. **Professor of History, Department of History.**
2. **Professors of Education, Department of Education.**
3. **Professor of Islamic Studies, Department of Islamic Studies.**
4. **Professor of English, Department of English.**

Qualifications

I-Essential: An eminent sholar with published work of high quality actively engaged in research. About ten years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

II-Desirable: (For post No. 2 Professor of Education). Specialisation in any one of the following areas: (For one post only)

Advanced Psychometrics, Child Development. Psychology of Learnings, Educational Technology for Sociology of Education.

(For Post No. 3 Professor of Islamic Studies) Adequate knowledge of Arabic or Persian or Turkish.

Note: For post No. 4 Professor of English. Those candidates who have applied in response to Advertisement No. 7/86-87 dated 25th June, 1986 need not apply again. They will be considered on the basis of their previous applications if eligible.

Readers

Scale of pay: Rs. 1200-50-1300-60-1900 plus allowances

5. **Readers in English, Department of English.**
6. **Reader in Islamic Studies, Department of Islamic Studies.**
7. **Reader in Economics, Department of Economics.**

Qualifications

I-Essential: Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years experience of teaching and/or research provided that atleast three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding record of Teaching/Research.

Note: For Post No. 5 Readers in English. Those candidates who have applied in response to Advertisement No. 7/86-87 dated 25th June, 1986 need not apply again. They will be considered on the basis of their previous applications if eligible.

Desirable: For Post No. 6 Reader in Islamic Studies.

Knowledge of Arabic or Persian or Turkish or Malay.

Lecturers

Scale of pay: Rs. 700-40-1100-50-1600 plus allowances

8. **Lecturer in Geology, Department of Geology.**
9. **Lecturer in Physics, Physics Selection, Z.H. College of Engineering & Technology.**

Qualifications

I-Essential: (a) A Doctor's degree or research work of an equally high standard; and

(b) Good academic record with atleast second class (C in the seven point Scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing inter-disciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research Laboratory/Organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

FACULTY OF ENGINEERING & TECHNOLOGY

Professor

Scale of pay: Rs. 1500-60-1800-100-2000-125/2-2500 plus allowances.

10. **Professors of Chemical Engineering/Petroleum Processing Institute of Petroleum Studies and Chemical Engineering.**

Qualifications

I-Essential: An eminent scholar with published work of high quality actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding Engineer/Technologist with established reputation who had made significant contribution to knowledge.

II-Desirable: Teaching experience in Institution of University level.

Field of Specialisation

To be specialised in one or more of the following areas:

Transfer processes, Reaction Engineering, Chemical Engineering, Thermodynamic, Computer Aided Design and Optimization, Petroleum Refining, Petro-Chemicals.

Note: Adequate background of Petroleum Refining. (For one post only)

Note: Those candidates who have applied in response to Advertisement No. 7/86-87 dated 25th June, 1986 need not apply again. They will be considered on the basis of their previous applications if eligible.

Readers

Scale of pay: Rs. 1200-50-1300-60-1900 plus allowances

11. **Reader in Civil Engineering, Department of Civil Engineering.**
12. **Reader in Mechanical Engineering (Combustion), Department of Mechanical Engineering.**
13. **Reader in Mechanical Engineering (Fluid Mechanic), Department of Mechanical Engineering.**
14. **Readers in Chemical Engineering/Petroleum Processing Institute of Petroleum Studies and Chemical Engineering.**
15. **Reader in Mechanical Engineering, Mechanical Engineering Section, University Polytechnic.**
16. **Reader in Electrical Engineering, Electrical Engineering Section, University Polytechnic.**
17. **Reader in Electronics Engineering for T.V. and Radio Technology, Women's Polytechnic.**
18. **Reader in Electrical Engineering (Instrumentation) University Polytechnic.**

Qualifications

I-Essential: A good academic record with a Doctor's degree in a relevant field. About five years experience of teaching and/or research and development.

Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order either in the Institution or in an Industry.

OR

In the case of persons to be recruited from Industry or Professional fields, candidates should possess good academic record with recognised professional work of about seven years which should include innovation and or research and development.

UNIVERSITY NEWS, MONDAY, JANUARY 19, 1987 Regd. No. R.N. 7180/63 Post Regd. D(C) 1086

II-Desirable: For post No. 12 and 13 Reader in Mechanical Engineering.

Published research work in reputed Journals teaching experience to Postgraduate classes.

For post No. 14 Readers in Chemical Engineering

Field of Specialisation

To be specialized in one or more of the following areas:

Transfer processes, Reaction Engineering, Chemical Engineering, Thermodynamics, Computer Aided Design and Optimization, Petroleum Refining, Petro-Chemicals.

Note: Adequate background of Petroleum Refining. (One post only)

19. **Reader in Costume Design & Dress Making, Women's Polytechnic.**

Scale of pay: Rs. 1200-50-1300-60-1900 plus allowances.

Qualifications

At least second class Master's degree in Textile and Clothing or its equivalent with seven years Professional, Teaching experience in a Polytechnic/College/University.

OR

At least second class Bachelor's degree with Home Science or its equivalent with First class Diploma in Costume Design & Dress Making with seven years Professional/Teaching experience in a Polytechnic/College University.

Note: Lady candidates will be preferred and the period of experience in their case will be relaxable by one year.

Note: Those candidates who have applied in response to Advertisement No. 7/86-87 dated 25th June, 1986 need not apply again. They will be considered on the basis of their previous applications if eligible.

20. **Reader in Architecture, University Polytechnic.**

Scale of pay: Rs. 1200-50-1300-60-1900 plus allowances.

Qualifications

B. Tech. with 7 years experience in teaching/Research professional work.

OR

M. Arch. with 5 years experience in teaching/research/professional work.

Lecturers

Scale of pay: Rs. 700-40-1100-50-1600 plus allowances.

21. **Lecturer in T.V. & Radio Technology, Women's Polytechnic.**
22. **Lecturer in Civil Engineering, Civil Engineering Section, University Polytechnic.**

Qualifications

(a) Master's degree in appropriate field in Engineering/Technology.

(b) Consistently good academic record with a Bachelor's degree in Engg./Technology. First class at Bachelor's degree and/or Master's degree level.

(c) One year's relevant professional experience outside academic/Research Institution.

Having regard to the requirement of emerging fields of Engineering and of developing inter-disciplinary programmes, the requirements of Engineering/Technology degrees may be waived in the cases of otherwise well qualified candidates.

Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired professional experience within a period of five years of his appointment failing which he will not be able to earn future increments, until he fulfills this requirement.

If the candidates with M.Tech./M.E. qualifications are not available or not found suitable for appointment, the essential qualifications may be relaxed and first class Engineering graduates may be appointed subject to the condition that the candidate concerned shall have to obtain the M.Tech. /M.E. degree within a period of five years, failing which he will not be able to earn future increments until he acquires the prescribed qualifications.

23. **Lecturer in Costume Design & Dress Making, Women's Polytechnic.**

Qualifications

I-Essential: At least second class Master's degree in Textile and Clothing.

OR

At least second class Bachelor's degree with Home Science with First class Diploma in Costume Design and Dress Making.

II-Desirable: Two years professional/teaching experience.

Note: Those candidates who have applied in response to Advertisement No. 7/86-87 dated 25th June, 1986 need not apply again. They will be considered on the basis of their previous application if eligible.

FACULTY OF MEDICINE

Professors

Scale of pay: Rs. 1500-60-1800-100-2000-125/2-2500 plus allowances.

24. **Professor of Skin & V.D., Department of Medicine.**

Qualifications

M.D. (Dermatology & Venereology) M.D. (Medicine) with D.V.D., D.D.

Teaching/Research Experience.

As Reader in Venereology and Dermatology for four years in a Medical College.

25. **Professor of Pharmacology (Temporary), Department of Pharmacology.**

Qualifications

M.D. (Pharmacology)/M.D. (Pharmacology & Therapeutics)/M.B.B.S. with M.Sc. (Pharmacology)/Ph.D. (Medical Pharmacology)/D.Sc. (Medical Pharmacology)

Teaching Research Experience

As Reader in Pharmacology for four years in a Medical College.

Readers

Scale of pay: Rs. 1200-50-1300-60-1900 plus allowances.

26. **Reader in Neuropsychiatry (One post) (Leave Vacancy), Department of Medicine.**

Qualifications

I-Essential: M.D. (Psychiatry)/M.D. (Psychological Medicine)/M.D. in Medicine with Diploma in Psychological Medicine.

Teaching/Research Experience

As Lecturer in Neuro-psychiatry for five years in a Medical College.

II-Desirable: Published research work in the speciality.

27. **Reader in Orthopaedics, Department of Orthopaedics Surgery.**

Qualifications

I-Essential : M.S. (Orthopaedics)/M.Ch. (Orthopaedics)

Teaching/Research Experience

As Lecturer in Orthopaedics for five years in a Medical College.

II-Desirable: (i) Research and Publications.
(ii) Experience in Arthroscopy

Note: Those candidates who have applied in response to Advertisement No. 6/86-87 dated 18th June, 1986 need not apply again. They will be considered on the basis of their previous applications if eligible.

Note: FOR ALL THE POSTS OF READERS
Persons appointed as Lecturer prior to 1982 recommendations, the teaching experience as Registrar and as Lecturer be considered eligible for appointment as Reader.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class Railway fare only.

Prescribed application forms and instructions may be had from the Assistant Registrar (Selection Committees), Registrar's Office A.M.U. on payment of Rs. 5/- to be deposited in the Cash Section, Finance Office, A.M.U. or through an Indian Postal Order payable to the Finance Officer, A.M.U. either personally or by sending a self-addressed Stamped envelope of size 9 × 4".

Last date for receipt of applications is 29th January, 1987 (during office hours). Incomplete applications and those received late will not be considered.

Note: Suitable persons may be kept on panel for future appointment.

Javed Usmani,
I.A.S.
REGISTRAR

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House,
16 Kotla Marg, New Delhi-110002 Grams: UNIBOARD. Phones: 3315105, 3313390, 3312305, 3310059 and 3312429

University News

MONDAY, JANUARY 26, 1987 Rs. 1.50

Justice P.N. Bhagwati, former Chief Justice of India, delivering the convocation address at the Annamalai University. Seated from L to R are : Dr. M.A.M. Ramaswamy, Pro-Chancellor, Hon'ble Shri S.L. Khurana, Governor of Tamil Nadu & Chancellor and Dr. S.V. Chittibabu, former Vice-Chancellor of the University.

REGIONAL SOPHISTICATED INSTRUMENTATION CENTRE INDIAN INSTITUTE OF TECHNOLOGY, MADRAS 600036

Sponsored by

THE DEPARTMENT OF SCIENCE & TECHNOLOGY, GOVERNMENT OF INDIA

Regional Sophisticated Instrumentation Centre (RSIC), set up by the Department of Science and Technology at the Indian Institute of Technology, Madras, caters to the needs of scientific community by making investigative and analytical measurements using sophisticated instrumentation not readily available to all scientists. RSIC is concentrating mainly on spectoroscopic measurements, besides scanning electron microscopy (SEM), single crystal X-ray diffraction (XRD) and mass spectrometry. The service is offered at a nominal cost to scientific personnel working in the government, academic research and industry. RSIC is manned by an expert team of faculty and technical staff and will be happy to help in time-bound sponsored research projects.

FACILITIES INCLUDE:

* Atomic Absorption (about 40 important metals; detection levels 1 ppm).

* Fluorescence/Phosphorescence (200-800 nm, down to liquid nitrogen temperatures).

* Infrared spectroscopy (4000-200 Cm^{-1}).

* Fourier Far IR (1000-10 Cm^{-1}).

* Laser Raman with Ar^{+} and Kr^{+} lasers (0-4000 cm^{-1}).

* Wide Line NMR (3-35 MHz).

* UV-Vis-Near IR (185-3150 nm with reflectance and variable temperature).

* Electron Spin Resonance (X- and Q-band frequencies and variable temperature).

* FT-NMR (100 MHz for Proton, with other nuclei such as ^{13}C, ^{19}F, ^{31}P, etc.) and CW NMR for protons (90 MHz) with variable temperature facility.

* Mass Spectrometry with EI, CI, FAB, CA and GC facilities (mass range 10-2100).

* Computer Controlled Single Crystal Diffraction (X-ray target Mo/Cu/Cr).

* Scanning Electron Microscope (Magnification upto 300,000 and resolution 70 A).

* ESCA; AES; Depth Profiling: Chemical Mapping.

For DETAILS, BROUCHURE and CHARGES kindly contact

THE HEAD
REGIONAL SOPHISTICATED INSTRUMENTATION CENTRE
INDIAN INSTITUTE OF TECHNOLOGY
MADRAS-600036

Phone: 415342 Extn. 217 Telex: TECHMAS 041-7362 Grams: TECHNOLOGY

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NEWS

OL. XXV JANUARY 26
o. 4 1987
rice Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

Sports Education and Sports Schools

G. S. Sivia*

Meaning and Scope of Sports Education

At different periods of history, sports education had different meaning and varied in scope. For pre-historic and primitive nomads, it was learning proficiency in the elementary skills of running, jumping and stone throwing which was considered of absolute necessity for survival. These skills were exercised for food collection and shelter. For ancient civilization like the Greek-City-States, it was an art of building up military strength as Sparta did, even though sports also played an important role as a symbol of fraternity and brotherhood in these cultures. Olympic Games are a living example of that glorious contribution of sports. The Public Schools movement of 13th and 14th century England adopted sports as an integral part of education. Our system of education has inherited this legacy from the British system. 19th Century industrial revolution gave a new dimension to the concept of sports education. It was based upon utilitarian considerations, a philosophy which dominated the minds of industrial society of those days. Taking a clue from Plato that sound mind was possible only in a sound body, they thought that productive capacity of an industrial worker could be improved by harmonious development of both, and for this, physical exercise and mental relaxation from tension was necessary. They believed, this could be brought about by introducing a programme of competitive sports in the school curriculum. For the same reason this programme began to be adopted by the Industry. This approach gave a tremendous momentum to competitive sports. In modern societies the focus in competitive sports is shifting from Gentleman sport, as it was called during its younger days, to professional sport. Maybe rightly so because it is a product of the commercial environments of the industrial revolution. Another aspect of modern sport is that it is assuming increasing importance as an effective publicity media. The result is that it is attracting the patronage of the multi-national commercial houses and the State. This is happening despite a strong criticism from the public and sports governing bodies like the national and International Olympic Committees that the modern sport and its education is degenerating into a bread earning profession. Whether we like it or not, this is the emerging reality of the changing social phenomenon and is receiving tremendous social recognition.

Whatever different angles from which sport and as such sports education has been viewed through the course of history, one most important attribute of sports cannot be oversighted. That sports has always cut across the barriers of caste, colour, creed and religion which is of great relevance in the present situation of rising tide of fundamentalism. It is quite obvious that sports is a secular area of human activity, a source of enjoyment and satisfaction. Its pursuit contributes to the health and mental alertness. In the highly commercialised societies of today, it is a good vocation too. To realise the benefits of sports, sports education should find a place of pride in the educational curriculum in developing countries like India. For that, we should follow the example of the countries like GDR where millions of men and women of all ages go in for sports.

**Deputy Secretary (Sports), Association of Indian Universities, New Delhi.*

Specialist Sports Schools

Having discussed the meaning and scope of sports education, it is now possible to identify its aims and objectives in the school education. These aims and objectives are as follows:

(i) To evolve a meaningful programme of sports for the school-going youth;

(ii) To devise ways and means to implement th programme so evolved;

(iii) To improve the general health of the younger generation;

(iv) To identify those who have a special aptitude and potential for a particular sports disciplines; and

(v) To provide adequate opportunities to nurture the potential so discovered to enable it to give full expression to the hidden talent and achieve the heights of par excellence.

It is in respect of the fifth objective, in particular, that the specialised sports schools have to play an important role. For this purpose, the school system of education should be divided into two major categories: General education, and Sports education.

(i) General Education

Sports and physical education should be included as a compulsory subject and it should be given the status of any other subject such as Mathematics, Physics, Chemistry, Biology, Economics, Social Studies, Languages etc. The course content should focus on providing for rich variety of activities that the pupils get attracted to participate and a system by which the talented and those having special aptitude for different popular sports disciplines are spotted. Implementation of the compulsory programme of sports and physical education should be in the hands of technically/qualified physical education teachers. The spotted talent, however, should be under the charge of specially qualified coaches in various disciplines.

(ii) Sports Education

There should be a network of special sports schools, each school catering to a certain specified area. The talent spotted from the general education schools should be admitted to the special sports schools where accent should be on nurturing the sports talent whereas these schools should also provide for the necessary academic curriculum as followed in the general education schools. It is in the special schools where the spotted talent from the general schools should be groomed under the expert guidance of highly skilled and qualified coaches. Obviously, the course content of the professional institutions meant for producing the coaches will have t be refashioned in such a way that the products o these institutions, apart from acquiring the techniqu and methodology to impart the skill and training in the sports disciplines are also able to impart instructions in one or two academic subjects. The primary function of special sports schools should be to produce champions of national and international stature.

Polytechnique Schools and Sports

For the puspose of this article, the system of polytechnique schools in GDR is something like the system of general education schools in India. The term polytechnique schools as used in GDR therefore signifies the same as general schools in India. It should not be confused with the polytechnic institutions which are essentially vocational in their aims and objectives.

Schools are the nurseries for spotting and nurturing the talent in any field such as Science, Arts, Literature, Industry etc. The same is true for sports. The slogans like 'Catch Them Young' and 'Pick them up at the grassroot level' mean that the sports talent should be spotted and groomed at the school level. To achieve this, it is necessary that sports and physical education are given its rightful place in the system of school education, particularly by introducing it as a compulsory and examination subject. It would generate the right type of climate for mass participation and create necessary incentives for making efforts to improve. As mentioned above, the thrust should be through a two tier system i.e. by spotting the talent from the polytechnique schools and grooming them further in the sports specialist schools.

Two Tier System in India

Because of the persisting below expectation levels of performance of our teams as measured in terms of international standards, there is rather an urgency to have a fresh look at our system. Sports and physical education does not constitute—as it should—an integral part of the academic studies, nor is it an examination subject. Whatever little is there, the approach is very casual. It is not out of place to say that physical education and sports is a neglected field in the school curriculum. It is, therefore, no surprise that we are where we should be.

(*Continued on page 14*)

IDEAS IN HISTORY—I

B. Sheik Ali*

Prof. Sheik Ali believes a historian to be a statesman of ideas and a poet of the mind. In his thought provoking Presidential Address to the 47th Session of Indian History Congress, 7-9 October, 1986 he touched such topics as what the manner and matter of history should be; what the historical thought stands for; how are the historical principles applied and interpreted; what is the genesis of our ideas; how are these ideas come to be adopted; how do they influence other beliefs and actions; what tensions they create; what problems they generate; and what further new ideas they lead to. Excerpts :

I

History unites the objective side with the subjecive. It comprehends what has happened with narraion of what happened. This union of two functions is f higher order, which differentiates history from other ciences. Unlike in a study, say Physics, where the knowedge of the physical world alone is involved, in history ve have four different meanings. It refers to a kind of knowledge, a kind of literature, an actual sequence of events in time and their cumulative impact on human behaviour, which may lead to progress we call civilisaion. The point is that the law of nature is conditioned o a set plan, but in history there is greater complexity vhich exceeds that of nature. The cow grazes green rass to-day but gives white milk tomorrow. At least his phenomenon is constant in nature, but in history Brutus is friendly to-day but not tomorrow. Therefore ve have not merely to narrate what has happened but lso to comprehend why it happened, which is more difficult. Since the historian is both an investigator and story-teller, he is both a scientist and a poet, thus uniting in himself the subjective and the objective.

Our complexity arises because of "ideas in history". The world is ruled by ideas. There are two groups of deas, the practical and the philosophical. The man who makes history clubs them together to make the machine move towards progress. The man who writes history has to analyze these ideas and indicate their proporions which go to form the organic whole that constiutes history. Practical ideas get filtered through human will to result in realities. They are at the base of the happenings, and they influence human affairs. Such deas as ecclesiastical or temporal supremacy, divine right of the king or the common will, colonialism or nationalism, socialism or individualism, controlled democracy or full liberty, have all been translated in history as practical ideas through human will. The Italians supported the totalitarian ideas of Mussolini as they seemed to satisfy their ego. These ideas lasted only as long as the Italians thought they were useful, and were scrapped when they felt they yielded negative results. In other words the thinking process of the Italians made history at a particular point of time, and these thoughts were practical ideas which I am making as vital in history. It is the job of the historian to examine these ideas in depth, as does a computer when the stage of criticality is reached while splitting atoms.

Practical ideas alone do not make history. Mankind is betrayed by philosophical ideas as well. These are theoretical rather than practical. Their basis is not advantage or utility, but validity and correctness. Observe India's foreign policy. Alignment might have brought us more advantage from either of the blocks. Then we would not have made history; we would have been camp followers. Buddha renounced the throne, Socrates drank the cup of hemlock; Jesus went up the cross; Abraham Lincoln was shot dead, all because of ideas that did not seem practical at the time, but brought glory to them in history. Much of historical interpretation has learned on philosophical ideas. Hegel's view of history, or of Spengler or of Toynbee, or of the Greek idea of fate, or of Gandhiji's experiment with truth (Satyagraha) or of the idea of progress in modern times, have all a philosophical base, which is significant in history.

If the historian is a man of intellectual vigour, he could do wonders with these ideas. He would reduce them to a pattern to yield some underlying truths. He would synthesise the data obtained through his ingenuity, industry and honesty which he would process to formulate a general principle. Analysis is like anatomy

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**Vice-Chancellor, Goa University, Panjim, Goa*-403005.

relating to details but synthesis is like physiology which gives us the picture of health. The historian has to synthesise his material about some concepts which govern the whole of it. "Synthesis breathes the spark of life into dead materials and makes it move as living bodies. It shows him the trend of the terrain, the significance of the valley or the mountain range". Synthesis is to a historian what a radar is to a navigator. Speaking of the historian's craft in ideas one could hardly ignore its significance.

Practical ideas are tested by their utility, and philosophical ideas by their validity. Practical ideas are subject to pragmatic tests, and evade synthesis. Philosophical ideas permit synthesis but evade pragmatic tests. The utility of Fascism soon faded away, but Croce's philosophy of the spirit or Spengler's philosophy of imminence is hard to test. Therefore, what appears to be desirable is not the synthesis of the type of which meta historians like Hegel, Marx, Toynbee and others have done but the synthesis of the interpretative type such as of Charles Beard, who in his THE RISE OF AMERICAN CIVILIZATION synthesised the Civil war exposing the conflict between the old rural culture and the industrial culture of American life, bringing into focus the interplay of economic factors. This kind of history is being attempted in our country as well, but it has just begun, and has to go a long way before all our focal points are fully covered. Knowing the enormity of our canvas, the richness of our material and the variety of forces that interacted in our land, what we have done is meagre. If 200 years of American history could produce at least 16 different schools of interpretation, how much more variety a country of India's size, population, problems and periods could offer to the historians could well be imagined. I am not suggesting that we should imitate the Americans or follow the economic interpretation of Charles Beard, but only inviting the attention of my colleagues to reflect on the need for interpretative history.

The past is never before us except in our reflective spirit. It is we who first revive the past in our mind as a mental picture which becomes in history Asoka or Akbar. The gulf between the historian and his object is bridged, and it is done through a kind of thought which establishes a direct link between the historian's mind and the object of his study. The object must be such as could be revived in his mind. Einstein's theory of relativity cannot be revived in a historian's mind. All that could be revived is the general fact that Einstein has made a marvellous discovery. If atom bomb was dropped on Hiroshima or Nagasaki, the structure of the bomb cannot be revived in a historian's mind, except the causes that preceded and the consequence that followed. This activity is purely mental, based o course on sources, and hence the point that ideas are central in history. Our history is rich or poor in proportion to the quality of our mental activity to use our sources to build either a hut or a mansion.

It is not necessary that a pre-established harmony should exist between the historian's mind and its object. What is necessary is that the historian's thought must spring from the organic unity of historical experience. History writing is both a science and an art. The solid material of his craft, the sources, must be truthful, but its intelligent use is an art, which originates from the organic unity of his conscience. It is here that a historian becomes a path-finder, a Hegel, a Marx, a Kosambi or a Toynbee. Thucydides coming only thirteen years after Herodotus is a world apart from his predecessor. Material remains the same, but one is Guiacardini, the reading of whose history is a torture and another is Macaulay whose history is a delight. The value of history would depend upon what kind of thinking has gone into it.

Thought is not the flow of consciousness, but a different kind of mental activity. The flow of consciousness is feeling which comes under psychology. You may feel cold in Kashmir, which is not a thought, but you wrap yourself in woollens, which is an act of thought. Your actual wrapping is not significant in history, but the idea to protect yourself certainly is. The peculiarity of thought is that it is not merely consciousness, but self-consciousness, that generates action. This action is revived in a historian's mind, and history takes shape. Historical thinking is quite different from other types of thinking. It is reflective in nature. Buddha thought before renouncing the world. It is his thought revived in our mind which is the subject matter of history, and not any of our thoughts to renounce the world. If we renounce no body takes notice of it, but Buddha was in special circumstances of state responsibilities and his renunciation in respect of his position and the age has special meaning. In other words, the nature and the uniqueness of the idea together with its reflection, or reenactment in the historian's mind form an essential aspect of history. Historical thinking is something like trying to remember a forgotten name, when we demand from our memory to bring back what is forgotten, What we try to recall should be something extraordinary, worthy to be remembered.

Ideas are fundamental in history. History would be affected from a writer's whole view of human destiny. An interpretation of historical material is merely a riter's explanation of the significance of a series of vents, an epoch or movement. It embodies his own hilosophy of life. Hegel said that every epoch was nspired and dominated by a specific idea. Each idea ffirmed as truth brings also with it an idea which denies s truth. The positive and the negative wrestle in a attle, and a new idea emerges. Then the cycle repeats self. This is the concept of the thesis, antithesis and ynthesis applied to historical events. This dialetic nethod was discarded later as a tool of understanding. But what matters most for us to remember is that istory challenges its disciples to arrange the ever growing mass of facts in ever changing patterns, and thus ffers limitless scope for keen insight into the subtle ngenuity of man to present a new drama of life from ge to age.

Success in history writing is directly proportional o the intellectual power of the writer. It is the special lory of history that it touches the realm of ideas at nore points than almost any other study. It responds o every new current of thought. When Darwin came ut with his theory of natural selection, Bagehot was eady to show that in social institutions and in the animal kingdom the rule of the survival of the fittest was n operation. Each age was bound by a continuous force which prompts improvement and progress on the preceding age. An uninterrupted continuity of progress does xist in the world under which the weak go to the wall, nd the strong prevail. Bagehot believed that a science f history was possible. Likewise, when Marx appeared on the scene, he brought about a radical change in he mind of the historians, who were ready to accept he interpretation that the mode of production in economic life primarily determined the general character f social, political and cultural processes. With every hange in the mode of production, the entire superstructure of the society undergoes a change. There was metamorphic change in the entire approach to history. Value was defined as labour crystalised. The term humanism' received new meaning: the assertion of uman dignity the understanding that no value was reater than himself, the respect for the labour of man, he faith in his strength and intelligence to produce oods, and the recognition of those who actually produced the goods. Marxism claimed that it had established a link between humanism and the objective laws f social development. It tried to link humanism with cience which aimed at the solution of concrete problems of social progress.

Thus Marx was the first to formulate the economic nterpretation of history declaring the mode of production to be dominant factor in history. His followers inaugurated an era of monistic materialism. Lenin's MATERIALISM AND EMPIRIO-CRITICISM, Bukharin's emphasis on a technological interpretation of history, and Pokrovsky's monistic materialism preclude great men as determinants of events. They would only assert that great men have been facilitated by certain social conditions which made their rise possible, and that these conditions are in turn governed chiefly by economic factors.

Without going to examine the validity or otherwise of these views, my job is simply to assert what a radical turn ideas could give to historical thought. After 1914 frustration gripped mankind which felt that "social progress" was an empty phrase, and that march of man towards "better conditions" witnessed unprecedented slaughter of humanity. Not one but two world wars with depression in between offered no hope to mankind. The fashion of historical philosophies assumed cosmic character. The idea of the upward spring towards higher

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and better life was discarded, and history was reduced to a series of pulsations, to a kind of a swing and a counter-swing of the pendulum, and to a cycle of change in the fashion of summer, autum, winter and spring. Spengler's DECLINE OF THE WEST, Toynbee's STUDY OF HISTORY, Preto's MIND AND SOCIETY and Sorokin's CULTURE AND CULTURAL DYNAMICS were all efforts to explain the genesis, growth and decay of cultures. Toynbee as warned us of the possibility that the modern culture might disappear as did the Greek or the Roman or any other earlier culture. He has characterized the national State as obsolete, mistaken and even "criminal entity". He says that the militarism and despotism which it breeds is a threat to the whole future of mankind. He thinks that a world Government is inevitable, but its creation would require a revolution. Great moments of history, according to him, are not those when empires were built, but those when great religions, like Hinduism, Buddhism, Christianity and Islam, emerged on the scene.

Spengler too is of the same genre who struck the cosmic note. His work DECLINE OF THE WEST is one of the most influential, controversial and incisive works of modern times in the realm of social sciences, pure philosophy and philosophy of history. To Spengler history offered a repetitive alternation of liberty and authority, the foxes and the lions. He examined the past in the searchlight of rise, growth and decay of cultures, and passed his verdict on the contemporary European culture, which he said was on the last leg of its journey. He came out with his cyclical view of history and the immutable law of nature. Cultures are not made to order but are whimsical which like wild flowers arise with superb aimlessness. Spengler's main philosophical presuppositions rest on Copernican system of history which consists in a dualistic division of reality or cosmic energy, into its two main aspects, the world as history and the world as nature. Nature is that shape or image in which the man of higher culture synthesises the impression of his senses. On the other hand, history is the image which the man of higher culture creates intuitively, instinctively and then rationally to comprehend the world around him in relation to his own life.

These two aspects of reality differ from each other along many lines and lead to different methods of cognition, of the world as history and the world as nature. The world as history is a living potentiality with life and soul, in a state of incessant becoming, fulfilling a unique life-course or destiny, in the time process, passing from the past through the present to the future, never reversing its direction. On the other hand the world as nature is a realised actuality, a thing become, existing in space as a mechanically repeated necessity of cause and effect. In history there is form, rhythm, physiognomy and individuality but in nature there is only quantitative, timeless and mechanical uniformity. According to Spengler civilisation is the last phase of a culture under the pressure of organic law of nature. Each culture has its childhood, youthhood, manhood, old age and decay. When the fire in the culture's soul dies it enters into its last phase, the civilisation. "They are a conclusion, death following life, rigidity following expansion; they are an end... They are like a worn out giant of the primeval forest, thrust their branches towards the sky for hundred or thousands of years, as we see them in China, India and in the Islamic world".

We may agree or not with his ideas but his analysis is fascinating in respect of the symptoms he presents of the civilisation phase. (1) There is cosmopolitanism and megalopolis as against home, race, blood and fatherland. (2) Scientific irreligion or abstract dead metaphysics takes the place of sincere religion of the heart. (3) Bold matter-of-factness replaces reverence, tradition and respect for age. (4) International Society instead of 'my country' and 'my nation' leads to composite culture in which national identity is lost. (5) Natural rights instead of hard-earned rights, which make people lazy, leading to loss of liberty. (6) Money and abstract values in the place of fruitful earth and real values. (7) "Masses" instead of "folks" disturbing social solidarity and political structure. (8) Sex instead of motherhood, and individual family instead of joint family, resulting in broken marriages, broken hearts and broken homes. (9) Imperial expansion, urbanisation and internationalisation in the place of compact societies national states and rural atmosphere. (10) Finally, the cult of bigness, lust for power and class struggle instead of equality, unity and social justice.

Whether such ideas supported early Nazism need not be discussed here, although Spengler sternly rejected the Nazi doctrine of race superiority. What is of interest to us are the flashes of insight they offer into historical problems, which belong not merely to the limbo of the past, but to the present as well. They excite new formula in experimental search for truth, which is the main domain of the historian. They intend to invite our attention not to the shallow forms of history, but to the higher region of the intellect. They demand from us a more profound treatment of history, which exactly is the issue I would like to highlight. Let us remember Ranke who said that shallow treatment of history would be visited by divine punishment.

We may notice from the foregoing that society trays its character as a subject for science. Many ve been led into the pursuit to detect the secret which uld transform these odds and ends of philosophy into intelligent pattern of harmonious and complete stem. Intuitively many have attempted to find a short t to resolve the mystery of causality in history. Scores times the historian "must have dropped his pen to ink how one short step, one sudden inspiration, ould show all human knowledge, how in these thickest rests of history one corner turned, one faint trail ruck would bring him on the high road of Science".

II

From the Renaissance period which inaugurated he era of enlightenment, there has been a radical change n our approach to history, which became secular, non-artisan, instructive and philosophical. Pragmatism ntered into history which judged events according o their practical lessons or values. That led in its turn o the rise of the Utilitarian School of thought of Bolngbroke, Bentham, Mill and Macaulay. They held he view that the adoption of ethical principles in state olicy was not as important as the intention to improve he conditions of the people. Rationalism was introduced ven into the theological fields giving us a picture of history in which priests deceive, courtiers intrigue, monarchs enjoy and people suffer. History was brought back from the external to the internal. Not merely the physical but psychic factors received attention. Works dealing with wars, treaties and ceremonies were pushed to the archives for consultation on occasions as "historical dictionaries'. True history was the discovery of what the society was in the past, its morals, manners, arts, crafts, literature, philosophy and institutions. History was rendered not only more 'interior' but also more broadened in space and time. India, China, and the Islamic world had been completely ignored, and they were not only brought back but also a more refined technique of criticism was applied to the value and authenticity of their records. Depth was given to history by examining the chain of ideas in the light of humanism, pragmatism and criticism.

The pursuit of ideas continued further in the direction of negating the trends of the earlier era. A romantic approach followed, which was a reaction to the rational and intellectual approach. The romanticists discarded reason, preferred imagination, and developed fanciful, picturesque, poetic, sentimental and extravagant concepts in history, which was quite characteristic of the age of Keats, Shelley and Byron. Rousseau's state of nature was a romantic idea. The old religious outlook, the old national customs, regional and local loyalties, old houses, cathedrals and castles, and the nostalgic history of singing again the old songs and dreaming again the old dreams, all came back. The life of chivalry, the crusades, the Gothic architecture and the romantic adventures seized the imagination of the historian. A new kind of historical romance, the high priest of which was Sir Walter Scott, set a new fashion. Carlyle presented his great man theory. On the positive side, history was rendered more interesting, although more fanciful, injecting greater respect for national character and institutions. A union of philosophy took place with philology, and attempts were made to synthesise events into systems. Again, the idea that history was the teacher of virtue and prudence was discarded. To the question, what is the use of history, 'History' itself was the answer. The nineteenth century glorified itself as 'the century of history'. It humanised history and made it a centre of reality and thought.

The search for truth persisted. The pendulum swung again towards rationalism. The result was Positivism which said human knowledge could not go beyond human experience. It enquired into the processes of events, examined their intrinsic relations, traced their causal connections, and explained historical phenomena in terms of laws and principles. The Positivists felt that ideas in history touched our consciousness at three points: the integrity of historical events, the unity of the narration, and the imminence of development. These three aspects divided thinkers into three different groups: the historians, the philologists and the philosophers. The historian was supposed to write history, the philologist, to supply him the data, and the philosopher, to draw proper conclusions from them.

The philosophers were the funny lot. They called themselves positivists, naturalists, sociologists, empiricists and critics. Others had worked from the conception of the end, they chose to work from the conception of the cause. Others had attempted a dynamic of history, they worked with a mechanic of history, which prompted them to christen history a 'Social Physics'. Others had relied on politics or economics, they swore by sociology, which itself was the product of their creation. They made sociology stand in the same relation to history, as did zoology to physiology; or chemistry to minerology. They jumped at statistics to fly high as science. Comte was the manipulator of all this game.

Comte the high priest of Positivism propounded his famous law of the three stages: the theological, the metaphysical and the positive stage. In the first stage man resigned himself to God, in the second, to metaphysics, and in the third, to the discovery of relations that exist among phenomena. Positivism revealed that there was decreasing generality and increasing complexity in history. Compte believed that the true destination of both history and science was social progress, and that history should acquire right technique to reorganize society. In 1822 he published his plan to reorganize society which became the charter of positive philosophy. In that he discarded metaphysical idealities and prepared the ground for 'determined laws', which governed human societies, as the world of nature is governed by the physical laws. Through these determined laws history was to enable the State not only to govern better but also to predict the future. Comte desired to do for history what Newton has done for physics.

Thus the flow of ideas wrought wonders in Europe. This was promoted also by those who were struggling in other areas to liberate humanity from authority. Montesquieu's SPIRIT OF THE LAWS is largely historical in character. Its third part dealing with customs and manners depending upon climatic conditions is of great interest to history. It contains a number of new ways of interpreting history. Likewise, Voltaire did much to liberate history from the grip of supernatural elements. Hume and Gibbon reconstructed history under the brilliant light of reason. The tendency of the times, the tenor of public opinion, the spirit of the age, and not the actions of a single man, received attention. Adam Smith's WEALTH OF NATIONS had a powerful impact on history. He dealt a shattering blow at the whole aristocratic theory of history, and proved that history did not revolve either around lords or the clergy. The upper class—the king, noble, soldier, priest and statesman—all came under attack, and economic factors were shown as the central current of historical forces. Even wars were the product of economic factors, and that the principal forces which governed the life of man were production, market, labour, prices and raw material. Adam Smith cut a new path in interpretative history.

The French Revolution gave a new turn to history by its novel political ideas—political liberty, economic equality, social justice, democratic values, nationalist spirit and so on. The masses were pushed on the stage and they became the central focus of historical interest. No longer did divine right theory hold any sway. Along with the political and economic factors, the scientific temper of the 19th century had great impact on historical writing. It bewitched the historians so much as to make Bury declare, 'History is a science, no less and no more". History had to keep up with the march of science. Not merely geography, sociology and econ mics but even biology, psychology and statistics wer pressed into service. Thomas Buckle's HISTORY O CIVILIZATION IN ENGLAND created a sensation His plea that statistics be increasingly used to establis laws governing human action, which are governed by fixed and predictable rules, was quite in tune with the scientific temper of the age. His emphasis that climate, soil and food are at the base of intellectual progress, was a shot in history's arm to claim itself as a baby of science. His conclusions such as people reared in harsh surroundings are tought minded, and that those brought up in sublime scenery are more imaginative excited the historians at the discovery of new tools of their craft.

Thus ideas gave multi-dimensions to history. Social history, cultural history, economic history, intellectual history were all there in the air dividing historians into various interpretative groups. Even literary form was used to explain the vital unity with the existing social conditions. The drama, the epic, the essay, the novel, were all vividly studied in draw proper conclusions about the character and tastes of the people, and to know the demand in the market for those ideas. Cultural histories tracing social developments became quite popular.

The journey of ideas in history thus took strange routes. From philosophy to interpretation, from interpretation to synthesis, from higher-ups to masses, from wars; battles and conquests to origin, growth, structure and activities of the society, from descriptive catalogue of events to physical, psychological, sociological, economic and intellectual analysis of vital factors, were all traversed in a manner to show that historical forces are organically connected one with the other in a rational and permanent order. A new trend emerged in the writing of history. No history lacked a view point or a thesis or a definite principle of synthesis. It may be a common place or obvious view, or it may be of great originality and insight, but it all rotated round a central idea. History without a thesis was regarded as man without backbone. Events in history were woven into some pattern. Some historical theses were non-controversial, but others were highly controversial. Marx's economic interpretation to history tips the scale in inviting heated debates. A thesis may sometimes rest upon new material which presents a new interpretation upon an old problem. Thus history is no longer subject to the attack that it lacks in ideas. It does contain great intellectual fervour. It has contributed much to every sector of human activity, and it has responded to every new current of thought. □

[To be Concluded]

The Making of a Nation

Hon'ble Justice P.N. Bhagwati, the then Chief Justice of India, delivered the Convocation Address at the 54th Convocation of the Annamalai University on 14 December, 1986. In his address, Justice Bhagwati cautioned students against taking the spirit of nationhood for granted. He urged them to take a holistic view of environment, and work for the eradication of poverty, want and destitution. Excerpts :

Convocation

The generation to which I belong has failed the people of India: we have let them down. We have lost our sense of commitment to the nation and its people. It is only the youth which can save the country from retrogression and take it forward along the path of development and prosperity. Fortunately, in our country, we have young men and women who are full of idealism and enthusiasm who are willing to stake everything in the service of the country. We have to mould them, motivate them and inspire them so that when they go out of the portals of the University, they are ready to take their rightful place in the life of the nation and to participate in the nation building activities. We have to inculcate in them patriotic fervour and instil in them a sense of social commitment so that they may realise that their primary obligation is to serve the nation. You, young men and women, are the inheritors of the great Tamil tradition which is rich in litetature, art, music and sculpture.

You have a rich tradition of music enriched by three of the greatest composers—Thyagraja, Muthuswamy Dikshitar and Syama Sastri. You have produced Kokilagana Subbulakshmi who has enchanted audiences not only in India but all over the world. You have given to the world one of the greatest dance forms, namely, *Bharatnatyam* and it was again a Tamilian, namely, Rukmani Devi who popularised *Bharatnatyam* throughout the country. I am glad to find that this tradition of dance is being kept alive by the younger generation. It is a remarkable fact of history and it bears testimony to the great spiritual tradition of India that all her various dance forms originated in the temples. You have also produced great Administrators and legal luminaries such as Sir Aladi Krishnaswamy Iyer and Gopalaswamy Iyengar who participated in the drafting of our magnificent Constitution. Some of the great literature in Tamil has been translated in other Indian languages and in fact when I was in Gujarat, I had the opportunity of releasing the Gujarati translation of 'Kural'. What Tamil Nadu has contributed in the field of literature, art and culture is not the treasure of Tamil Nadu alone but it belongs to the whole of India.

Whilst on this topic, I would like to draw the attention of the student community to a rather unfortunate state of affairs which is developing in the country. We find that today the unity and integrity of the nation is threatened by the divisive forces of regionalism, linguism and communalism and regional, linguistic and communal loyalties are gaining ascendancy in national life and seeking to tear apart and destroy national integrity. We tend to forget that India is one nation and we are all Indians first and Indians last. It is time we remind ourselves of what the great visionary and builder of modern India, Jawaharlal Nehru said "who dies if India lives; who lives if India dies". We must realise, and this is unfortunately what many in public life tend to overlook, sometimes out of ignorance of the forces of history and sometimes, deliberately with a view to promoting their self-interest that national interest must inevitably and forever prevail over any other considerations proceeding from regional, linguistic or communal attachments. The history of India over the past centuries bears witness to the fact that India was at no time a single political unit. Even during the reign of the Maurya dynasty, though a large part of the country was under the sovereignty of the Mauryan Kings, there were considerable portions of the territory which were under the rule of independent kingdoms. So also during the Moghul rule which extended over large parts of the territory of India, there were independent rulers who enjoyed political sovereignty over the territories of their respective kingdoms. It is an interesting fact of history that India was forged into a nation neither on account of a common language nor on account of the continued existence of a single political regime over its territories but on account of a common culture evolved over the Centuries.

It is cultural unity—something more fundamental and enduring that any other bond which may unite the people of a country together—which has welded this country into a nation. But, until the advent of the British rule, it was not constituted into a single political unit. There were, throughout the period of history for which we have fairly authenticated account various kingdoms and principalities which were occasionally engaged in conflict with one another. During the British rule, India became a compact political unit having one single political regime over its entire territory and this led to the evolution of the concept of a nation. This concept of one nation took firm roots in the minds and hearts of the people during the struggle for independence under the leadership of Mahatma Gandhi. He has rightly been called the Father of the Nation because it was he who awakened in the people of this country a sense of national consciousness and instilled in them a high sense of patriotism without which it is not possible to build a country into nationhood. By the time the Constitution of India came to be enacted, insurgent India, breaking a new path of non-violent revolution and fighting to free itself from the shackles of foreign domination, had emerged into nationhood and "the people of India" were inspired by a new enthusiasm, a high and noble spirit of sacrifice and above all, a strong sense of nationalism and in the constitution which they framed, they set about the task of building a strong nation based on certain cherished values for which they had fought. The Constitution makers were conscious that the divisive forces of regionalism, linguism and communalism may one day raise their ugly head and threaten the unity and integrity of the nation, particularly in the context of the partition of India and the ever present danger of the imperialist forces adopting new stratagems, apparently innocuous, but calculated to destabilise India and re-establish their hegemony and, therefore, they laid great emphasis on the unity and integrity of the nation in the preamble of the Constitution and its various articles.

But, unfortunately, we find that in the last few years, owing to the emergence of narrow parochial loyalties fostered by interested parties with a view to gaining advantage for themselves, a serious threat has developed to the unity and integrity of the nation and the very concept of India as a nation is in peril. The threat is obtrusive at some places while at others it is still silent and is masquerading under the guise of apparently innocuous and rather attractive claptrap. The reason is that when the Constitution came into operation, we took the spirit of nationhood for granted and paid little attention to nourish it, unmindful of the fact that it was a hard-won concept. We are today faced with a situation where the unity and integrity of India is threatened. It is, therefore, absolutely essential to eschew all narrow parochial, regional and linguistic considerations and begin to regard ourselves as Indians and Indians alone. It should be a matter of no consequence to us whether we are Tamils or Gujaratis or Marathis or Bengalis or Keralites. There is a strong historical and cultural threat which binds us together, regardless of where we are residing or what language we are speaking. The divisive tendency which has developed of late that we are Gujaratis or Marathis or Tamils must be eradicated from our minds and hearts and we must think only of India as our country and we must be proud of being Indians. This, our youth alone can do. I have no faith in the people belonging to my generation because some times with a view to gaining short term political or personal objectives, they appeal to narrow, parochial regional loyalties, forgetting that in the process they tend to destroy the unity and integrity of the nation.

Shri S.L. Khurana, Chancellor of the Annamalai University giving away the prizes to Miss J. Uma at the Convocation of the University.

There is also one other matter to which I would like to draw the attention of the student community and that is protection of environment. Today, we are indiscriminately polluting the environment without caring as to what would be the consequences to the future generations. We are destroying the planetary resources by exploiting and misusing them. It is therefore, absolutely essential to develop value awareness and environmental perception. The holistic view of environment calls for perception at individual as well as collective level of different classes of people. It requires besides education, an awareness of the unity of life binding man with the vast and complex nature around him, the external environment and his internal environment which are all integral parts of the whole. In the words of Tagore:

> *'The same stream of life that runs through my veins night and day, runs through the world and dances in rhythmic measures'.*

The optimism of the twentieth century arising out of improved technology and advancement of sciences was viewed with an apprehension by the ecologists and conservationists in the forties itself, who felt that man was out of balance with his environment and would pay for the consequences if he were not attentive to maintain the ecological balance. It was said by Osborn years ago: 'Man must recognise the necessity of cooperating with nature. He must temper his demands and use and conserve the natural living resources of this earth in a manner that alone can provide for the continuation of civilization. The final answer is to be found only through comprehension of the enduring processes of nature. The time for defiance is at an end'. This warning has become far more menacing today with the increased industrialization and urbanization than what it was forty years ago when Osborn expressed his views, to realize the gravity of the situation in so far as it relates to maintenance of quality environment in the perspective of today's fearful trends of industrialization and increased share of our consequent responsibility. It is essential to develop an awareness of values in this area. The future depends on us now and it is for us to decide as to how best we can fulfil our commitments and obligations to the generations to come. Our values alone can determine and direct us to establish environmental priorities and the extent to which our personal materialistic growth should be curtailed to leave an abundance of high quality environment for the posterity.

I would also like to point out to you that we are facing the serious problem of poverty in our country. We have to eradicate poverty from our midst. We have to lift our people from the quagmire of dirt and squalor, want and destitution. This we can do only if our minds are obsessed by a nobler cause, our hearts are gripped by a higher ideal. We must cultivate in our youth the twin virtues of renunciation and service. Let me make it clear that when I talk of renunciation, I do not mean that we must give up the world and go and live in a forest or cave. Our culture does not preach an escapist philosophy: it is full of positive dynamism. It has always acted as a great stimulus to full and complete development of all facets of life. That is why when we look at the past history of India, we find her stupendous vitality, her inexhaustible power and joy of life and her ceaseless prolific creativeness in all fields of human endeavour. Look at your famous temples in Tamil Nadu. What exquisite architecture and sculpture you find etched in stone depicting richness of life. We have to revive our great culture and this we can do only if we follow the twin ideals of renunciation and service. These eternal values have inspired us through the ages and they have sustained us over the last 5000 years when other civilizations and cultures have perished long ago and now live only in the pages of history or in the archives of museums. That is why Swami Vivekanand said as far back as 1897 on his return to India from the West.

> *"The longest night seems to be passing away, the sorest trouble seems to be coming to an end at last, the seeming corpse appears to be awaking—India, this motherland of ours—from her deep long sleep, None can resist her any more; never is she going to sleep any more; no outward powers can hold her back any more; for the infinite giant is rising to her feet."*

These were the prophetic words of the great Swami. But for the time being, they seem to have become unreal. The great values that we cherished in the past unfortunately appear to have been submerged by self-centredness, self-aggrandizement, greed for wealth and power and exploitation. It appears that since independence we have cared more to exploit our newly won freedom for selfish purposes than to serve its cause or enhance its value. We seem to have developed a mood of complacency, an inordinate love of money, ease and comfort, and a suicidal tendency to indulge in narrow parochial interests and petty issues. We have been indulging in the name of democracy and under the guise of promoting it, in every conceivable form of indiscipline, on grounds of individual or group interest, regardless of the national interest. We have not learnt the lesson that self-discipline and tolerance are essential in a democratic way of life and that desired changes are to be brought about by democratic and constitutional means and not by agitations and violence. No doubt some of these lessons are being burnt into our souls today and we are beginning to realise that no nation can march forward without discipline and character. But what is most necessary to impress upon us all is that today, more than ever before, we need to inspire ourselves with the twin ideals of renunciation and service. We cannot build this great country, we cannot destroy its backwardness and make of it a truly progressive and enlightened country unless our people are once again imbued with the spirit of renunciation and service. We have before us the great example of Mahatma Gandhi, the Father of Nation. He rekindled in us these great values of renunciation and service and through them he brought us our freedom. Now, having secured our freedom, we must not forget these values. The best of human achievements proceed from us when we think least of ourselves. "He that findeth his life shall lose it", says Jesus, "and he that loseth his life for my sake shall find it". This has been the teaching of the great masters throughout the history, and I would earnestly appeal to you, my young friends, to bear this teaching in mind and dedicate yourselves to the service of the country in fullest measure. Whether you have one talent or ten talents, is not of much importance. What you do with what you have is what counts. There is joy in being wedded to something greater than yourself. It is divine to be gripped by higher loyalties. The secret of an integrated life is to choose a cause that commands the best in you, something that you believe with all your heart and then, to give yourself up to that cause with all your mind and strength. That is what I would like you to do to subordinate your personal interest and surrender yourself to the cause of India's millions.

My young friends, ours is a very poor country. There are millions of people in our country who are living in conditions of abject poverty. They have hardly any food to eat, any clothes to wear or any shelter over their head. They are living a sub-human existence. When I think of these starving millions of our countrymen, I ask myself in tears: when will their misery end: when will their suffering cease, when shall we see a smile on their hollow cheeks and sunken eyes. There is an urgent necessity for everyone of us to dedicate ourselves to the task of service of these poor downtrodden masses.

No one in modern India felt more deeply than Mahatma Gandhi the anguish and suffering of our hungry millions. When Rabindranath Tagore in one of his poems painted a beautiful picture of birds singing hymns of praise as they soar into the sky, Gandhiji said: "But I have had the pain of watching birds, ———who for want of strength could not be coaxed even into a flutter of their wings. The human bird under the Indian sky gets up weaker than when he pretended to retire. For millions it is an eternal vigil or an eternal trance. . . . I have found it impossible to soothe suffering patients with a song from Kabir. The hungry millions ask from one poem: invigorating food." This shows how deeply moved was Mahatma Gandhi by the misery and sufferings of the millions of our countrymen. God has been kind to us. He has given us enough. He has given us money, position and strength. Let us bend all in the service of our poor suffering masses, for then alone will India be able to rise and take its rightful place amongst the nations of the World. As I close, let me recall the words of that great visionary and dreamer, Jawaharlal Nehru:

> *"The service of India means the service of the millions who suffer. It means the ending of poverty and ignorance and disease and inequality of opportunity. The ambition of the greatest man of our generation has been to wipe every tear from every eye. That may be beyond us, but as long as there are tears and suffering, so long our work will not be over."* ☐

Association of Indian Universities
AIU House, 16 Kotla Marg
New Delhi-110 002

The Telegraphic Abbreviated Address of the Association has been changed from "UNIBOARD" to "ASINDU"

Natural Resources in North-East India

A national seminar on Development of Natural Resources in North-East India, held in Manipur University from 15 to 17 December, 1986 was organised by the Department of Earth Sciences of the University with the financial support of the University Grants Commission, New Delhi. The seminar was attended by 20 delegates from outside institutes and universities and over 30 local delegates from the host University. The deliberations of the national seminar were spread over three days and seven sessions.

Dr. L. Chandramani Singh, Irrigation and Flood Control Minister, Manipur, in his inaugural address, highlighted the paramount need for resource mobilisation for development of the region. He stressed the neeed for proper conjunctive use of water resources to alleviate recurrences of floods and droughts, and the need for development for mineral resources keeping the vital importance of environmental and ecological balance in view. He said that remote sensing application for terrain evaluation had an important role to play in conjunction with the conventional ground based surveys to generate better scientific data base in a time and cost-effective manner leading to better scientific management of the natural resources. Professor K.J. Mahale, Vice-Chancellor, Manipur University in his presidential address, emphasised the need for scientific evaluation of the natural resources of the north-eastern region to solve the problems of unrest and discontent by accelerating the process of economic development. He stressed the need for proper scientific investigations and planning programmes based on the vast natural resources available in the region to make North-East India one of the richest regions of the country.

The first session on Land Resources covered aspects of geomorphic studies, use of remote sensing for soil and landuse mapping, shifting cultivation and its environmental impact, land resource potential, geological studies and remote sensing for groundwater exploration. The second session covered topics on Water and Forest Resources. The third session was devoted to Mineral Resources and the fourth session to general aspects of natural resources.

A special session of Panel Discussion on Remote Sensing was also organised. Participating in the panel discussion, Professor K.J. Mahale, Vice-Chancellor, Manipur University, agreed to provide two acres of land in the University campus for the establishment of Regional Remote Sensing Centre. It is felt that this centre will be in a position to generate better scientific data base in time and cost effective manner leading to better scientific management of natural resources, so important for economic planning of the north-eastern region in general and Manipur State in particular.

Prof. N. Tombi Singh, Hon'ble Member of Parliament, who delivered the valedictory address, stressed the need for accelerated economic development of North-East India by tapping and utilising her vast natural resources. Professor K.J. Mahale, in his presidential address, emphasised the need for development of human resources alongwith the natural resources to achieve balanced integrated development. He hoped that the recommendations of the seminar will provide a sound base for future planning of the natural resources of the north-eastern region of the country.

The seminar generated some useful information and dialogue amongst the participating Scientists for future development of NE India. Based on the deliberations, following recommendations were made for timely consideration and implementation:

(a) The scientific management of land and natural resources is of paramount importance. For this, updated scientific data base/inventories must be generated to have actual information about the resources by use of modern Remote Sensing techniques for terrain mapping/evaluation and monitoring alongwith appropriate ground based surveys in such difficult and remote terrain of North-East India.

(b) Trained manpower for utilising remotely sensed data must be quickly made available for taking up and update surveys.

(c) The data base thus generated must be effectively translated into sound Resource Management Plans followed up by usable transfer of technology to extension worker levels/agencies and proper implementation action in a dedicated manner.

(d) Further exploration, assessment and scientific/planned exploitation of the mineral resources be taken up. Planned mining be adopted to avoid damage to environment.

(e) A balance be achieved between exploitation of resources and its conservation specially with regard to optimal and conjective use of surface and groundwater resources. Water balance studies should be done and flood and droughts be monitored for future control measures.

(f) Cultivation should not be promoted in areas where soils have been depleted in their inherent fertility. Soil conservation measures be properly adopted wherever necessary specially in areas of active soil erosion.

(g) Afforestation be taken up in degraded areas. Social Forestry should also be adopted. Based on land suitability, proper plans may be made for agriculture, horticulture, pastures and forestry.

(h) Apart from scientific management of natural resources, on the human level social consciousness as to optimal land and mineral resource utilisation must be suitably generated both by missionary convincing and promulgation of laws. People's participation is a must in any programme of scientific management of resources.

(i) A LAB-TO-LAND Programme be taken up with people's involvement on actual tribal village sites.

(j) Pisciculture be further developed.

(k) Forests, being most important renewable natural resources and forming single largest land-use in the North-East region, need to be mapped and inventored accurately using suitable remote sensing techniques for their scientific management.

(l) Shifting cultivation should be gradually replaced by horticulture and other cash crops. Shifting cultivators may be rehabilitated at suitable places on permanent basis. People should be educated to this effect and provided all scientific techniques and financial assistance. Ways should be found out to provide alternate sources of livelihood for the tribal people. Regular supply of food-stuffs may be ensured from the neighbouring plains.

(m) In the Imphal valley, which is closed, only non-polluting industries should be encouraged. Establishment of polluting industries in the valley should not be permitted. □

Sports Education and Sports Schools

(*Continued from page 2*)

The National Sports Policy adopted by the Government of India in 1984 recognises the importance of participation in sports and physical education for good health, high degree of physical fitness, increase in individual productivity and also its value as a means of beneficial recreation promoting social harmony and discipline. The National Sports Policy also recognises the necessity of raising the national sports standards so that our sportsmen and women acquit themselves creditably in international sports competitions and earn a place of respect for the country at the international sports arena. Within the framework provided in the National Sports Policy, New Education Policy 1986 recognises physical education and sports as an integral part of the learning process. The emphasis is on harmonious development of individual personality and raising national sports standards. Besides, India has been taking steps from time to time to sharpen the sports abilities of the available talent. Many schemes have been floated in this direction. Since 1955 there has been Rajkumari Coaching Scheme which was modified in 1962 and then in 1968. At present, coaching is imparted to those having speical aptitude for sports through the National Coaching Scheme. The scheme is operating in the form of regional coaching centres. A couple of years back NIS introduced another scheme in the name of SNIPES Field Stations which is essentially for meeting the needs of the universities and colleges. Recently, Sports Authority of India has also launched another scheme of adopting sports schools.

What is required is amalgamation of all these schemes into a new system of Special Sports Schools which should function as a second tier. The primary tier should be the general education schools. The promising youngsters spotted from the general education schools should be admitted to special schools where special emphasis should be laid on improving their sports excellence in various disciplines. We should follow the system which has already produced results. The example of GDR where Special Sports Schools cater to the needs of talent spotted from the polytechnique schools is before us. They have produced tremendous results by adopting this two tier system and providing proper linkage between sports and polytechnique schools. □

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
February 2-6, 1987	Short-term Course on Digital Methods for Satellite Data Use in Water Resources Quantification.	To acquaint the participants with the techniques of Image Processing and Digital Analysis of Landsat Data with special emphasis on the application of techniques to the fields of Water Resources, Pedology, Forestry, Earth Sciences and Mineral Resources.	Centre of Studies in Resources Engg., IIT, Bombay.	Dr. T.V. Pavate, Chief Project Engineer, Training Extn. & Project Cell, R.S.D. No. VI, C.S.R.E., Indian Institute of Technology, Powai, Bombay.
February 9-12, 1987	Second Conference on Economic Theory and Related Mathematical Methods	To provide a forum to discuss and share research ideas in economic theory	Planning Unit, Indian Statistical Institute, Delhi Centre	Mr. P. Chander, Indian Statistical Institute, Delhi Centre, 7, S.J.S. Sansanwal Marg, New Delhi - 110016
February 16-19, 1987	National Seminar on Crystal Growth and Characterisation of Advanced Materials for Solid State Applications	Topics to be covered are: Theoretical and Experimental Aspects of Crystal Growth; Heat and Mass Transport; Industrial Crystallisation; Rapid Solidification and Casting; Biological and Molecular Crystals; and Special Crystals—New Techniques and Instrumentation.	Crystal Growth Centre, Anna University, Madras.	Prof P. Ramasamy Convener, Third National Seminar on Crystal Growth, Crystal Growth Centre, Anna University, Madras.
February 23-27, 1987	Short term Course on Application of Digital M.S.S. and Thematic Mapper Data for Quantification of Agricultural and Forest Resources.	To acquaint the participants with the techniques of Image Processing and Digital Analysis of Landsat Data with special emphasis on the application of techniques to the fields of Water Resources, Pedology, Forestry, Earth Sciences and Mineral Resources.	Centre of Studies in Resources Engg., IIT, Bombay.	Dr. T.V. Pavate, Chief Project Engineer, Training Extn. & Project Cell, R.S.D. No. VI, C.S.R.E., Indian Institute of Technology, Powai, Bombay.
February 25-28, 1987	Workshop on Structures for Nuclear Power Reactor Technology	To provide a forum to take stock of the present knowhow in various civil and structural engg. aspects of nuclear power plant construction and to project the future needs for Research and Development in this area.	Department of Civil Engg., IIT, Madras.	The Coordinator, SNUPORT-REDECC 1987, Structural Engg. Laboratory, Department of Civil Engg., Indian Institute of Technology, Madras.
March 2-5, 1987	Seminar on Recent Advances in Concrete Construction	To provide an opportunity for exchange of experience amongst practising engineers, consultants, research workers and academics and to guide the research and development activities in the area of concrete construction.	Department of Civil Engg., IIT, Madras.	The Coordinator, SNUPORT-REDECC 1987, Structural Engg. Laboratory, Department of Civil Engg., Indian Institute of Technology, Madras.

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BY THEM FOREVER**

davp86/40-4

REPUBLIC DAY

26 JANUARY, 1987

Planetarium for Delhi University

The Delhi University is likely to have its own planetarium soon. According to Prof. Moonis Raza, the Vice-Chancellor, a proposal to this effect has been sent to the Ministry of Human Resource Development for clearance.

The electronic planetarium which Delhi University wishes to get is far better than any existing planetarium and perhaps the best in the world. It has been recently made by the Scuba University of Japan and is likely to be a gift from Japan under an Indo-Japanese agreement.

Prof. Raza feels three factors will favour Delhi University in getting the planetarium: First, the university science departments have a good name; secondly, students and teachers of this university are known to be committed people, and lastly, by gifting the planetarium to the most prestigeous south Asian university, both the country and exporting agency will get a lot of goodwill.

Delhi University is also planning to set up a Centre for Science Education and Communication, of which the planetarium will be made a part. This proposal has also been sent to the Ministry for acceptance.

The Centre would be a meeting point for the university community and the public at large and would try to popularise science and increase public awareness of scientific issues, particularly those which affect the daily lives of people, the environment and matters of public policy.

It would undertake projects and studies, organise workshops and seminars, provide a project facility centre for students who wish to increase their knowledge of science by doing something outside their curriculum and also organise placement programmes for students with research groups on a short-term basis.

Prof. Moonis Raza, who conceived the idea for the Centre, says "it will rectify the ills caused by the relative isolation of the university departments from the outside world".

According to the blueprint prepared by a high-level committee of the university, the Centre would also contribute to school science by developing monographs to supplement and enrich various units in textbooks, particularly at the plus two level.

Curbing the Capitation Fee

The Government proposes to initiate stern measures, to end the practice of charging capitation fee from students seeking admission to medical colleges. The Medical Council Act is likely to be suitably amended in the budget session of the Parliament.

The draft bill which is ready also contains a new section under which no new medical college or higher course of study or increase in admission capacity will be allowed except with the prior permission of the Medical Council. (The absence of this provision in the existing Act has resulted in the opening of large number of substandard colleges).

Another new section envisages that no medical college shall admit students large in number than the one permitted at the time of establishment of the college except after obtaining permission of the Council or the Centre. Similarly no foreign student can be admitted in any college except under and in accordance with rules made in this behalf by the Centre. This section further provides for reservations of seats for Scheduled Castes and Tribes in accordance with the Government of India instructions.

Another section gives powers to the Medical Council to prescribe the scales of fees to be charged by different medical colleges and would authorise the Medical Council to lay down different scales of fees for Indian and foreign students. It also envisages that no college accepts directly or indirectly any payment or donation or gift whether in cash or kind from students in connection with admission or for prosecution of any course of study or training. The bill also lays down the procedure for taking action against defaulters.

It is also proposed to lay down restrictions on practice of medicine by foreign nationals and grant temporary registration to foreign nationals. The second provision has been made to take care of the training needs of foreign students coming under the various schemes of the Ministries of External Affairs and Education.

At present, the medical qualifications are recognised university-wise with the result that it is not possible to take action against individual colleges and derecognise their qualifications if they fail to maintain the minimum standard of medical education. It is proposed to recognise the medical qualifications of individual colleges for taking action against defaulting colleges.

A new section is to be inserted providing for recognition of postgraduate medical qualifications granted by other examining bodies. This is to take care of the postgraduate degrees being awarded by the National Board of Examinations.

It is also proposed to increase the umber of members of the executive ommittee of the Medical Council f India to 15 from the present 12.

It is proposed to increase the membership of postgraduate committee from nine to eleven and to reduce the number of persons to be nominated by Government of India from six to five and to increase the number of persons to be elected by the Council from three to six.

The bill also provides for the constitution of ethics-cum-disciplinary committee and to lay down the powers of the disciplinary committee.

Education for Women's Equality

Education, by itself, is not necessarily supportive of a progressive social change. "Much depends upon what the content of the educational message is and who the educators are," said Dr. M.S. Gore, former Vice-Chancellor of Bombay University while delivering the fifth J.P. Naik Memorial Lecture on "Education for Women's Equality". Dr. Gore said freedom and equality were as necessary for women as fresh air. If education is to be made a means of promoting women's equality, we will have to make sure that there are enough themes and subjects in the curricula and extra-curricular activities which will make the young think and discuss the subject, he said.

Instead of promoting the stereotypes of a free and equal woman, he felt, the society should lay stress on importance of equality as a fundamental social value. The pupil should be made to realise the importance of equality in respect of men, women, rich-poor, as also among different ethnic, religious and linguistic groups.

Dr. Gore felt it will be an over-simplification of the complex social problem to think the equality would be achieved once men are made to give up their "authoritarianism" and women their "submissiveness". He said so because, according to him, these "virtues" were not just situational or sex related attributes, for modifications in behaviour patterns and attitudes were vital for a desired social change, he said.

Integrated Development of Medicinal Plants

Gujarat Ayurved University, Jamnagar, has initiated various innovative measures to strengthen postgraduate teaching and research. It has undertaken projects to prepare video casettes on 'Medicinal Plants', and on special therapies like 'Ksharsutra' and 'Panchkarma' to highlight the special features of Ayurved through educational media. It has also decided to prepare a 'Herbal Atlas' and has launched a programme to train the tribals in identification and collection of medicinal plants.

Gujarat Government is reported to have set up a 'Cell' for integrated development of medicinal plants under the Chairmanship of Shri V.R. Mehta, Vice-Chancellor, Gujarat Ayurved University. The Department of Forest and Environment, the Department of Agriculture, the Department of Tribal Welfare and Development, the Forest Development Corporation, the Ayurved Vikas Mandal and the Universities of Agriculture and Ayurved have been given representation in the Cell. The Cell will work for coordination between the departments and agencies concerned and evolve schemes and recommend measures for integrated development of medicinal plants in collection, storage, transportation, marketing and processing of drug material to be obtained from medicinal plants.

Admission Policy for Business Administration at California State University

Indian Graduates who have completed 14 Years of Schooling are eligible to get admissions in the Graduate Course in Business Administration at the California State University, San Bernardino, (USA), provided they take one year of Study (Nine Courses). Previously it used to be of sixteen years of Schooling which is still prevalent in all the Universities of the U.S.A. This was disclosed by Dr. A.R. Bhatia, Director of Graduate Studies of the School of Business and Public Administration, California State University, San Bernardino, while delivering a series of 'Extension Lectures" under the auspices of Jiwaji University, Gwalior.

Dr. Bhatia who spearheaded a campaign to change the university policy with the assistance of Indians living in California, advocated strongly that the Bachelor's degrees of Indian Universities were second to none and should be considered equivalent to the American Degrees.

Man, Medicine and Environment

The Gujarat Ayurved University, in collaboration with the Department of Environment, organised a seminar on 'Man, Medicine and Environment.' Shri V.R. Mehta, Vice-Chancellor, inaugurated the Seminar and Dr. Anand, Dean of Medical Faculty in M.P. Shah Medical College, presided.

In his address, the Vice-Chancellor said that environmental protection was not only a national problem but was a global challenge. He referred to health hazards arising out of air pollution, water pollution, industrial and chemical wastes and advocated measures to recycle the wastes for healthy utilization. He stressed the need for more vigorous research in utilization of biological controls in place of chemical pesticides used in agriculture. He also pointed to limitations of virological and immunological research by modern science and advocated means to increase internal resistance of body to combat diseases.

News from Agril. Varsities

Cattle Theileriosis Can be Cured

The Haryana Agricultural University (HAU) scientists have achieved a breakthrough in the successful treatment of cattle theileriosis which is a highly fatal disease and causes great economic losses. It is caused by a malaria like protozoan parasite (*Theileria annulata*) which is transmitted by ticks. The disease is widely prevalent in India and more than half of the world food producting ruminants are at risk due to this disease. Thus, the economic losses associated with this disease are collosal.

This disease causes high fever, extensive anaemia and heavy mortality ranging from 80 to 100 per cent especially in exotic breeds of cattle and young calves. The breakthrough has been achieved by the team of scientists under the leadership of Dr. O.P. Gautam, Professor of Eminence at HAU, under a special ICAR Project.

Among the various drugs studied for treatment of cattle theileriosis, Buparvaquone was found highly effective in a single dose regimen even in very advance stage of infection in young calves. All the treated animals showed uneventful recovery when supportive treatment with haematinics was adopted. This drug seems to be very effective in the treatment of bovine tropical theileriosis which had evaded treatment so far. It brings about complete recovery and the country will save hundreds of crores of rupees which are lost by high mortality and morbidity due to this disease in cattle.

With the availability of this drug in the treatment of theileriosis a great hurdle in the improvement of cattle wealth by cross breeding with exotic germ plasm will be successfully overcome.

HAU Develops New Bajra Variety

The Central Variety Release and Notification Committee for Haryana State has released a high yielding variety of Bajra HHB-50. Developed by the scientists of Haryana Agricultural University (HAU), Hisar, this variety has resistance to major diseases of bajra especially the Dowy mildew. This variety is suitable for early as well as late sown conditions and matures in 78-80 days.

Trials conducted during last 4 years have proved that this hybrid gives an average yield of 31 quintal per hactare and has out-yielded the presently cultivated hybrids HHB-45 and BK-560 by a margin of 4.9% and 18.6% respectively.

Sports News

Upendra Bahadur Leads Varsities Volleyball Team

Indian Universities' Volleyballl Team for men captained by Upendra Bahadur Singh of Allahabad University participated in the Federation Cup Volleyball Tournament held at Thane (Maharashtra) from Jan. 18 to 24, 1987. The other members of the team were:

M. Ahmed Ali — Madurai Kamaraj University,

Madhu S.A. — Gandhiji University,

Shailendra Pratap Singh—Allahabad University,

Mohanan B. — Kerala University,

Vivek Deshpande — Nagpur University,

M. Akram Khan — Ravishankar University,

Ravinder Singh — H.P. University,

Baldev Singh — Kurukshetra University,

Kiran Pal Singh — Meerut University,

Achal Tirkey (Vice-Captain) — Ranchi University,

Sanjay Naik — Amravati University.

The team was finalised at the two-day selection trials organised at Allahabad on Jan. 3 & 4, 1987. In all 37 probables from various universities attended the trials. Prior to its participation in the Federation Cup Tournament, a coaching camp of the selected players had been organised at Mayo Complex at Allahabad from Jan. 5 to 22, 1987 under the guidance of Mr. R.B. Chauhan, Volleyball Coach, Kurukshetra University.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles culled from Periodicals received in AIU Library during December, 1986.

EDUCATIONAL SOCIOLOGY

Kundu, Manmatha. Tribal Education in India: An effective pedagogy. *J Indian Edn* 12(4), 1986, 43-8.

EDUCATIONAL PLANNING

Adiseshiah, Malcolm. A tentative balance sheet of the new educational policy. *New Frontiers Edn* 16(3), 1986, 1-10.

Altbach, Philip G. 'A Nation at Risk': The educational reform debate in the United States. *Prospects* 16(3), 1986, 337-47.

Gregorios, Paulos Mar. Towards some clear and achievable goals for a national educational programme for India. *New Frontiers Edn* 16(3), 1986, 11-8.

NATIONAL POLICY on education: Programme of action. *New Frontiers Edn* 16(3), 1986, 34-116.

EDUCATIONAL ADMINISTRATION

Mackenzie, Clayton G. Academic standards and recruitment in developing countries: A case study. *Hr Edn Rev* 19(1), 1986, 9-22.

Schachter, Hindy Lauer. State coordinating agencies and academic innovation: A policy sector perspective. *Hr Edn* 15(3-4), 1986, 333-42.

CURRICULUM

Donald, J.G. Knowledge and the university curriculum. *Hr. Edn* 15(3-4), 1986, 267-82.

Khan, A.G. Teaching of humanities for the computer age. *J Indian Edn* 12(4), 1986, 22-6.

TEACHERS & TEACHING

Ajit Singh. Inservice teacher education: Programmes and perspectives, *J Indian Edn* 12(4), 1986, 38-42.

Auerbach, Arnold J. Professors in retirement: The emeritus college model. *Coll Bd Rev* (141), 1986, 22-3, 34-6.

Elton, Lewis. Research and teaching: Symbiosis of conflict. *Hr Edn* 15(3-4), 1986, 299-304.

Heredia, Rudolf. Some dilemmas in college teaching. *New Frontiers Edn* 16(3), 1986, 30-3.

Niranjan Reddy, B and Lakshmi Reddy, M.V. Teacher training: The role of microteaching. *J Indian Edn* 12(4), 1986, 17-21.

Revans, R.W. Education for change and survival. *Hr Edn Rev* 19(1), 1986, 55-67.

Seshadri, C. Teacher education: The continuing debate. *J Indian Edn* 12(4), 1986, 3-10.

Tetenbaum, Toby J and Mulkeen, Thomas A. Designing teacher education for the twenty-first century. *J Hr Edn* 57(6), 1986, 621-36.

EDUCATIONAL TECHNOLOGY

Gilbert, Steven W and Green, Kenneth C. New computing in higher education. *Change* 18(3), 1986, 33-50.

Laurillard, Diana. Introducing computer-based learning. *Open Learning* 1(1), 1986, 10-2.

Torres, Miguel Reyes. Education of television audience: Nature and objectives. *Prospects* 16(3), 1986, 391-96.

EVALUATION

Koul, Lokesh and Bhadwal, Satish Chand. Implications of formative evaluation. *J Indian Edn* 12(4), 1986, 11-6.

Norton, Linda S and Hartley, James. What factors contribute to good examination marks? : The role of notetaking in subsequent examination performance. *Hr Edn* 15(3-4), 1986, 355-71.

ECONOMICS OF EDUCATION

Bray, Mark. Student loans for higher education: The Hong Kong experience in international perspective. *Hr Edn* 15(3-4), 1986, 343-54.

Cronin, Joseph M. Student financial aid: An international perspective *Coll Bd Rev* (141), 1986, 8-11, 31-3.

Eide, Kjell. Education in a period of economic austerity: Experience in Northern Europe. *Prospects* 16(3), 1986, 348-54.

Hansen, Janet S. Alternatives to borrowing: How colleges are helping students avoid debt. *Change* 18(3), 1986, 20-6.

Johnstone, D. Bruce. The future of financial aid: Principles, problems, probable outcomes. *Coll Bd Rev*, (141), 1986, 4-7, 29-31.

Lee, Kiong-Hock. Affective, cognitive and vocational skills: The employers' perspective. *Eco Edn Rev* 5(4), 1986, 395-401.

Leyland, David G. Commercialism and corporate strategy in British higher education. *Hr Edn Rev* 19(1), 1986, 23-33.

Mingat, Alain and Tan, Jee-Peng. Financing public higher education in developing countries: The potential role of loan schemes. *Hr Edn* 15(3-4), 1986, 283-97.

Olembo, Jotham Ombisi. Financing education in Kenya. *Prospects* 16(3), 1986, 369-75.

Paul, Una M. etc. Participation of local communities in the financing of education in Guyana. *Prospects* 16(3), 1986, 377-87.

Swift, John S and Mchugh, Ted. How CLEP helps individuals and institutions. *Coll Bd Rev* (141), 1986, 14-7, 34.

PHYSICAL EDUCATION

Whitner, Phillip A and Myers, Randall C. Academics and an athlete: A case study. *J Hr Edn* 57(6), 1986, 659-72.

PROFESSIONAL EDUCATION

Thorpe, Mary, etc. Open for business: Delivering the goods in management education. *Open Learning* 1(1), 1986, 5-9.

ADULT EDUCATION

Calvert, Jocelyn. Facilitating transfer of distance courses. *Open Learning* 1(1), 1986, 34-7.

Cole, Sue, etc. Towards good teaching by correspondence. *Open Learning* 1(1), 1986, 16-22.

Steltenpohl, Elizabeth and Shipton, Jane. Facilitating a successful transition to college for adults. *J Hr Edn* 57(6), 1986, 637-58.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Blackburn, Robert T and Conrad, Clifton F. The new revisionists and the history of U.S. higher education. *Hr Edn* 15(3-4), 1986, 211-30.

Kozakiewicz, Mikolaj. Economic crisis and educational crisis in Poland. *Prospects* 16(3), 1986, 327-36.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

BIOLOGICAL SCIENCES

Anthropology

1. Lakshmi Kumari, Parasa. *Genetic studies on some endogamous Hindu Castes of Andhra Pradesh.* OU.

Environmental Sciences

1. Balwant Singh. *A statistical mechanical approach to ecosystem analysis: The relative abundance pattern of species in a multi-species ecosystem.* JNU.
2. Jha, Prafulla Kumar. *Nature of chemical and sediment load in the Yamuna river basin.* JNU.

Microbiology

1. Muralikrishna, P. *Protein synthesis by ribosomes from different bacteria and the role of ribosomal protein* S_1. Hyderabad.
2. Purohit, Hemant J. *Use of tamarind seed as raw material for microbial production of citric acid.* Nagpur.

Marine Biology

1. Chandrika, B. *Biology of Xenentodon cancila.* Kerala.
2. Murugan, T. *Studies on the biology of the sand crabs of Kerala.* Kerala.

Biochemistry

1. Mishra, Kamalapati. *Brain metabolism in iron deficient rats.* BHU.
2. Rathee, Santosh. *Characterization of seed storage proteins in mungbean, Vigna radiata (L) Wilczek.,* HAU.
3. Sarasija, P.N. *Studies on lysosomal enzymes (acid β-galactosidase) from human placental tissue.* Kerala.

Botany

1. Appa Rao, Podile. *Determinants of pathogenesis and biological control with special reference to vascular wilt pathogens.* Patel.
2. Banerjee, Meenakshi. *Nitrogen fixation studies on Aulosira fertilissma from rice fields.* BHU.
3. Bansal, Alka. *Purification and properties of a cyclic AMP-independent protein kinase and its regulation in Cicer arietinum L.* Delhi.
4. Dash, Sudhir Kumar. *Seed borne fungal diseases of selected vegetable and cereal crops and their control.* Utkal.
5. Dua, Vijay Kumar. *Antifungal activity of certain homoeopathic drugs.* HS Gour.
6. Fazili, Mohamad Ashraf. *Studies on alternaria blight of pigeon pea, Cajanus cajan (L.) Millsp.* BHU.
7. George, Mathew. *Investigation on the association of bacteria in the root wilt disease of cocount, Cocos nucifera L.* Kerala.
8. Gupta, Rakesh Chandra. *Physiological studies in Mentha species.* BHU.
9. Jeeja, G. *Cytological studies on South Indian Cyperaceae.* Kerala.

10. Kalisetty, Vani Manohar. *Study of Volvocales of Gujarat.* Patel.

11. Kaul, Ratnum. *Purification and kinetic properties of ribulose 1, 5 bisphoshate carboxylase and its regulation through phosphorylation in Moss, Funaria hygrometrica J. 2.* Delhi.

12. Koteshwar, Rao, K. *Anatomical studies in the genus Ficus L.* OU.

13. Narasimha Rao, G. *Studies on the floristics of angiosperms and the dermotypes of acanthaceae of Narsapur Taluk, Medak District, A.P.* OU.

14. Purohit, Madhumati. *Biological and phytochemical evaluation of some selected medicine plants.* Rajasthan.

15. Raju, A.R. *Cultural and pathological studies on Colletotrichum gloeosporiodse Penz Sace.* Calicut.

16. Reddy, E.R. *Ecology of Gracilaria corticata at Veraval Coast, Gujarat State, India.* Saurashtra.

17. Roshni Rao, Patri. *Nitrogen fixing potential of cyanobacteri from polluted waters.* BHU.

18. Sahu, Devi Lal. *Pollen morphology and aerobiological survey of Sri Ganganagar City.* Rajasthan.

19. Satyanarayana Prasad, Gandham. *Regulation of cell wall degrading enzymes and toxins with reference to wilt pathogens.* Patel.

20. Saxena, Narendra Behari. *Study of an agro-ecosystem Vigna aconitifolia in the desert of Rajasthan.* Rajasthan.

21. Shardendu. *Physico-chemical characteristics, primary production and nutrient dynamics of two ponds of Varanasi.* BHU.

22. Sharma, Ravi. *Effect of metribuzin on the physiology of tomato, Lycopersicon esculentum Mill and associated weeds.* BHU.

23. Sharma, Shashi Shekhar. *Cytogenetical studies of some common medicinal plants of Bihar.* Magadh.

24. Singh, Birendra Kumar. *Effect of plant parts extracts of Tagetes patula L. on the mitotic index of Allium cepa L. chromosomes.* Kerala.

25. Singh, Durg Vijai. *Mutational and physiological studies, in the cyanobacterium Anabaena doliolum Bharadwaja.* BHU.

26. Subramanian, R. Bagavathi. *Studies in the nectaries of some Bignoniaceae.* Patel.

27. Surya Kumari, T. *Studies on genotoxic effects of agrochemicals using genetic systems of higher plants.* OU.

Zoology

1. Ashwani Kumar. *Bio-ecology of few important aphidophagous syrphid flies (Diptera: Syrphidae).* PAU.

2. Balkishan Rao, K.S. *Effect of Aconitum napellus and Carica papaya on the reproductive physiology of normal and castrated male albino rats with particular reference to certain histological and biochemical changes in some selected endocrine glands.* OU.

3. Bhalerao, Pradnya P. *Pituitary-testes relationship in some Indian bats.* Nagpur.

4. Bhargava, Shobha. *Histopathological and histochemical studies on Periplaneta americana (L) treated with phosphamidon.* Rajasthan.

5. Das, Samir Kumar. *Studies on the systematics and biology of limnobiotic chironomides (Diptera: Chironomidae) of South Bengal, India.* Burdwan.

6. Didolkar, Ragini V. *Observations on the gastrointestinal tract of some mammals.* Nagpur.

7. Jain, Vinod Kumar. *Studies on the behaviour of some fishes.* HS Gour.

8. Mathur, Surendra Prasad. *Role of MPG, 2 mercaptopropionylglycine, in modifying in vitro tritium effects on the intestine of F_2 generation mice.* Rajasthan.

9. Narender Kumar. *A study of some gonadal non-steroidal regulators: Purification and characterization of inhibin and luteinzing hormone receptor binding inhibitor from sheep overies.* Delhi.

10. Pal, Ashis. *Studies on some aspects of physiology and biochemistry during postembryonic development of Callosobruchus chinensis L. a major pest of stored pulses under certain stress conditions.* Burdwan.

11. Quadri, Gowhar S.A. *Studies on the pathogenesis of clinical and experimental hepatic amoebiasis.* OU.

12. Rakesh Mohan. *Studies on some aspects of endocrinology of reproduction in the common carp, Cyprinus carpio L.* BHU.

13. Seth, Sunil Kumar. *On some aspects of the alimentary canal and digestion in an Indian fresh water teleost, Mystus aor Hamilton.* Burdwan.

14. Singh, Jai Prakash Narayan. *Histochemistry of the skin of the chequered water snake, Natirix piscator in various stages of sloughing.* BHU.

Medical Sciences

1. Mohan Rao, P.J.R. *Investigations of the central actions of bradyakinin in rats.* BHU.

2. Mohanty, Gopika. *Effects of drugs on nerve conduction: Electrical and biochemical aspects.* BHU.

3. Narayana Murthy, Jayasimha. *Neurochemical studies in brain super-oxide dismutase.* Bangalore.

4. Singh, Pushpa. *A cognitive study of patients receiving lithium therapy.* BHU.

5. Sinha, Prabha. *Pharmacognostical studies on some Phyllanthus and Euphorbia species.* BHU.

Agriculture

1. Bisheswar Prasad. *Studies on variability, sexuality and breeding behaviour in parwal, Trichosanthes dioica Roxb.* Rajendra Agrl.

2. Chintaluri, Subrahmanyam. *Effect of cycocel, copper and molybdenum on the yield and oil content of sunflower, Helianthus annus L.* BHU.

3. Dattatray, Kumbhar Dadu. *Nutrient requirements of green gram, Vigna radiata (L) Wilczek.* MP Krishi.

4. Ishwar Dass. *Bacterial induced pesticide tolerance in honeybees.* Yashwantsingh.

5. Madhuri Kumari. *To study the effect of potassium and marganese with and without Rhizobium on mung crop.* BHU.

6. Mehta, Kuldeep Kumar. *Translocation and assimilation of radioactive photosynthates in relation to growth and fruiting in apple, Malus domestica Borkh.* Yashwantsingh.

7. Munjal, Shivaji Vithoba. *Investigations on nitrate reductase in winged bean, Psophocarpus tetragonolobus (L) DC.* MP Krishi.

8. Muthoo, Autar Krishen. *Studies on effect of nutrition and plant regulants on gladiolus.* BHU.

9. Ranbir Singh. *Anionic effect on sulphur uptake, its vertical movement and release behaviour in different soil type.* HAU.

10. Ranjit Singh. *Insect pest complex of cabbage and harvest time residues of some insecticides used for their control.* Yashwantsingh.

11. Roy, Asish Ranjan. *Studies on varietal and cultural aspects of cultivation of ginger, Zingiber officinale Rosc.* Gauhati.

12. Singh, Kripa Shankar Prasad. *Effect of seed treatment with bacterial inoculum and pelletant on growth, yield and quality of gram, Cicer arietinum, grown under various soil moisture regimes.* Rajendra Agrl.

13. Singh, Rana Pratap. *Studies on kanker nodules of alkali soils of Varanasi division.* BHU.

14. Sukhbir Kaur. *Studies on sheath rot of rice in Punjab.*

15. Verma, Kartar Singh. *Standardization of foliar sampling technique and fixation of critical levels of N & P in peach, Prunus persica Batsch.* HP Krishi.

Veterinary Science

1. Shuddhu Ram. *Studies on efficiency of ecotoparasitic control measures in relation to nutritional status of animals.* BHU.

Indian Council of Agricultural Research

KRISHI BHAVAN, NEW DELHI-110009

JAWAHARLAL NEHRU AWARDS FOR OUTSTANDING POST-GRADUATE RESEARCH IN AGRICULTURE 1987

The Indian Council of Agricultural Research invites applications from post-graduate students who have obtained their Ph.D. degree during the year 1986 in the fields of agriculture/animal sciences (including fisheries) and home science for "Jawaharlal Nehru Award for Outstanding Post-graduate Research in Agriculture 1987." There will be ten prizes of Rs. 5,000/- each for outstanding research work of the following nature:

"Which may have bearing on finding a solution to any important national problem in the field of Agriculture, which is likely to have an impact on increasing the production or improving the quality of any important crop for human nutrition or animal productivity or increasing the technological efficiency of any process of economic importance connected with agriculture".

Candidates shall be required to submit the following documents through the Head of the Institute from where the thesis has been obtained:

(1) A copy of the thesis submitted by them for the award of the doctoral degree.

(2) A certificate from the guide of the candidate for Ph.D. degree stating the extent to which the work is the candidate's own contribution.

(3) 6 copies of the synopsis indicating precisely and in concise terms the work done by the candidate.

(4) 6 copies of the bio-data with complete address for correspondence with telegraphic address if possible.

The certificate awarded to the candidate for Ph.D. degree may also be sent. There is no prescribed proforma for applying for this award. Each candidate will be judged on the basis of the originality and the applied value of the investigations as revealed in the thesis submitted by him. In all matters relating to the award the decision of the Council shall be final and no correspondence on this account will be entertained.

Application with complete documents as mentioned above addressed to Shri Kishori Lal, Additional Secretary, (A), Indian Council of Agricultural Research, Krishi Bhavan, New Delhi - 110001 should be sent so as to reach on or before **15th April, 1987.** The last date for candidates in the Andaman and Nicobar Islands, Lakshadweep States/Union Territory in the North Eastern Region, Ladakh Division or J & K State and Sikkim is **30th April, 1987.** The award winning thesis will be retained by the Council for record. In case the application is not accompanied by a copy of thesis and the required number of synopsis and bio-data, the application is liable to be rejected at the screening stage.

HARI OM ASHRAM TRUST AWARDS FOR THE YEAR 1987

Nominations are invited for the Hari Om Ashram Trust Awards for the year 1987. Three awards of the value of Rs. 10,000/- each in cash or kind or both are given every year for outstanding original research, fundamental or applied including inventions, discoveries etc. leading to results of practical value in any field or subject within the purview of research in agricultural sciences, forest farming and social forestry and animal sciences (including Fisheries).

All scientists engaged in research in the fields of agriculture, forest farming and social forestry, animal husbandry and allied sciences in India shall be eligible for the awards. The results of research achieved/contributions made during the five years of the award shall only be considered for the awards. In the case of claims based on evolution of new varieties/strains, the final trials should have been completed within five years preceding the year of award.

Nominations can be made amongst others by Vice-Chancellors of agricultural universities or other universities having faculty of agricultural or biological sciences, Directors of Research Institutes including principals of agricultural and veterinary colleges, Presidents of scientific societies, academies and head of the principal scientific establishments in the country.

Nominations for the awards should be supported by a statement of work, achievement accomplished or performed by the candidate who is being nominated and a reasoned justification for the nomination together with reprints of publications or other supporting data.

The last date for receiving nominations for the awards is **15th April, 1987.** The last date for candidates in the Andaman and Nicobar Islands, Lakshadweep States/Union Territory in the North Eastern Region, Ladakh Division of J & K State and Sikkim is **30th April, 1987.** Five copies of the nominations on the prescribed proforma for the award should be sent in a sealed cover marked 'Confidential' to Sh. Kishori Lal, Additional Secretary (A), Indian Council of Agricultural Research, Krishi Bhavan, New Delhi - 110001. The copy of the proforma can be obtained from him by sending a self addressed envelope in the size of 27 cm x 12 cm. Applications/nominations received without five sets of reprints of publications are liable to be rejected at the scrutiny stage.

DR. RUSTOM DARASHANA ASANA ENDOWMENT PRIZE FOR RESEARCH ON PLANT PHYSIOLOGY, PLANT BREEDING SOIL CHEMISTRY/PHYSICS, AGRICULTURAL PHYSICS, AGRONOMY AND AGRICULTURAL ENGINEERING BEARING ON IMPROVEMENT OF KNOWLEDGE FOR PRACTICE OF DRY LAND AGRICULTURE FOR 1986-89

Nominations are invited for the "Dr. Rustom Darashana Asana Endowment Prize for Original Research" for the triennium 1986-89 carrying an amount of Rs. 5,000/- (Rupees five thousand only) in cash or kind or both, a citation and a certificate. The award is given once in three years to Indian scientists for outstanding original research on Plant Physiology, Plant Breeding, Soil Chemistry/Physics, Agricultural Physics, Agronomy and Agricultural Engineering bearing on improvement of knowledge or practice of dry land agriculture. Only results of researches/contributions made during the five years preceding the year of award shall be considered for the award.

Nominations can be made amongst others by Vice-Chancellors of agricultural universities/general universities with faculties of agricultural or biological sciences, Directors of research institutes including principals of agricultural and veterinary colleges, Presidents of scientific societies and academies and heads of the principal scientific establishments in the country such as CSIR, BARC, etc.

Nominations for the award should be supported by a statement of work achievement accomplished or performed by the candidate who is being nominated and a reasoned justification for the nomination together with reprints of publications or supporting data. Applications without reprints of publications are liable to be rejected at the preliminary scrutiny.

The last date for receiving nominations for the award is **15th April, 1987.** Four copies of the proposals on the prescribed proforma for the award should be sent in a sealed cover marked 'Confidential' to Shri Kishori Lal, Additional Secretary (A), Indian Council of Agricultural Research, Krishi Bhawan, New Delhi - 110001. The copy of the proforma can be obtained from him by sending a self addressed envelope in the size of 27 cm x 12 cm. Applications/nominations received without four sets of reprints of publications are liable to be rejected at the scrutiny stage.

DR. RAJENDRA PRASAD AWARD FOR THE BEST ORIGINAL STANDARD WORKS IN HINDI ON AGRICULTURE INCLUDING ANIMAL SCIENCES AND FISHERIES 1987

Applications are invited for Dr. Rajendra Prasad Award for the year 1987 for standard original books/manuscripts in Hindi on agriculture, including animal sciences and fisheries published/written between April, 1986 to March 1987. Books written by more than one author can also be considered. Five copies of the books/manuscripts for the award may be sent in a sealed cover marked 'Confidential' to Shri Kishori Lal, Additional Secretary (A), Indian Council of Agricultural Research, Krishi Bhavan, New Delhi-110001, latest by **15th April, 1987** in a prescribed form obtainable from him. The last date for candidates in the Andaman and Nicobar Islands, Lakshadweep States/Union Territory in the North Eastern Region, Ladakh Division of J & K State & Sikkim is **30th April 1987**.

In all matters relating to the Award the decision of the Council shall be final and no correspondence on this account will be entertained.

DR. P.B. SARKAR ENDOWMENT PRIZE FOR THE TRIENNIUM 1986-89

Nominations are invited for the "Dr. P.B. Sarkar Endowment Prize for Agricultural Research for the triennium 1986-89". The award is given once in three years for notable and original research, both fundamental and applied, calculated to lead to enhanced food production in India as revealed in books, monographs, papers or any other published account. The Award carries an amount of Rs. 5,000/-.

The award is open to Indian scientists only. All research workers engaged in research in the field of agriculture, animal husbandry and allied sciences shall be eligible for the award. The results of research achieved/contributions made during the five years preceding the year of award shall only be considered for the award. The persons who are competent to submit the nominations for the award include Vice-Chancellors of agricultural universities or other universities having a faculty of agricultural or biological sciences. Director of research institutes including Principals of agricultural and veterinary colleges. Presidents of scientific societies and academies and heads of the principal scientific establishments in the country such as CSIR, BARC etc. Nominations for the award should be supported by a statement of work, research accomplished or performed by the candidate who is being nominated and a reasoned justification for the nomination together with reprints of publications or other supporting data.

The last date for receiving nominations for the Award is **15th April, 1987.** Six copies of the proposals on the prescribed proforma for the award should be sent in a sealed cover marked 'Confidential' to Shri Kishori Lal, Additional Secretary (A), Indian Council of Agricultural Research, Krishi Bhavan, New Delhi - 110001. The copies of the proforma can be obtained from him by sending a self addressed envelope in the size of 27 cm x 12 cm. Applications/nominations received without six sets of reprints of publications are liable to be rejected at the scrutiny stage.

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Stipends/Fellowships/Scholarships available:

1. Stipends worth Rs. 600/- p.m. are offered to teachers sponsored by their Institutions.
2. A few Merit Scholarships worth Rs. 600/- p.m. will be awarded to non-sponsored candidates on the basis of a test.
3. A few merit scholarships worth Rs. 300/- p.m. for non-teacher participants, and stipends of Rs. 350/- p.m. for sponsored candidates during the period of contact programme of M.A. (Correspondence-cum-Attendance) in Foreign Languages are available.
4. UGC/CIEFL Teacher Fellowships — Rs. 500/- p.m.
5. UGC Junior Research Fellowships — Rs. 1000/- p.m.
   (on the basis of a national test).
6. CIEFL Junior Research Fellowships — Rs. 800/- p.m.

(Item Nos. 1 and 2 for Diploma Courses; Item Nos. 4 to 6 for M.Litt. and Ph.D. Courses.)

For Application Form for admission/fellowships and Prospectus, please write to the Editor, CIEFL, Hyderabad-500007, with a crossed postal order for Rs. 10/- drawn in favour of the Registrar, CIEFL, Hyderabad-500007.

Last Date for receipt of filled in applications:
Courses in English 28-2-1987.
Courses in Foreign Languages 31-3-1987.

K. Jayashankar
REGISTRAR

G.B. Pant University of Agriculture & Technology

Pantnagar-263 145, U.P.

ADMISSION NOTICE

A competitive entrance examination for selection of candidates for admission to the first year of the following academic programmes will be held on Sunday the 3rd May 1987 from 10 A.M. at Agra, Allahabad, Delhi, Hyderabad, Lucknow, Roorkee, Varanasi, and Pantnagar Centres:

A-Bachelor's Degree Programme	Minimum Eligibility Qualifications	Age
1. B.Sc. Ag. & A.H. 2. B.Sc. (Forestry) 3. Bachelor of Fisheries Sc.	Intermediate Agriculture/ Science (Biology or Maths) from U.P. Board, Allahabad or equivalent examination.	22 years on 30-11-1987 (3 years relaxation for SC/ST/ BC candidates
4. B.V.Sc. & A.H.	Intermediate Agriculture/ Science with Biology from U.P. Board, or equivalent examination.	-do-
5. B.Sc. Home Science (for girls)	Intermediate Agriculture/ Science (Biology or Maths from U.P. Board, Allahabad or equivalent examination.	-do-
6. Diploma in Home Science (for girls)	High School in Science from U.P. Board, or equivalent examination.	-do-

Candidates appearing in the above Board's examination in 1987 are also eligible to appear in the entrance examination provided their results are positively declared by 5th July 1987 otherwise they will stand disqualified.

B-Master's Programme in 44 Majors in the areas of :	Minimum Eligibility Qualifications
1. Agriculture 2. Veterinary Sciences 3. Engineering & Technology 4. Home Science 5. Basic Sciences; and 6. Food Science	Bachelor's Degree in Agriculture/ Veterinary Sciences/Engineering & Technology/Home Science/Basic Sciences, as the case may be, in First Division or an equivalent OGPA from a recognized University with not more than one third division at High School or Inter level.

C-Ph.D. Programme in 29 Majors in the areas of :	Minimum Eligibility Qualifications
1. Agricultural Sciences 2. Veterinary Sciences 3. Engineering & Technology 4. Food Sciences; and 5. Basic Sciences	Master's degree in Agriculture/Vety. Sciences/ Engineering & Technology/ Food Science/ Basic Sciences, as the case may be, in First Division, or an OGPA of 4.00 out of 5.00 from a recognised University with at least second class in Bachelor's degree and not more than one third division at High School or Inter level.

For full details, the Information Brochure and application form (Prescribed separately for Undergraduate, Master's and Ph.D. programmes) can be obtained by sending an 'ACCOUNT PAYEE' Bank Draft for Rs. 10.00 in favour of G.B. Pant University of Agriculture & Technology, Pantnagar on State Bank of India, Pantnagar Branch (Code 1133) or United Commerical Bank, Pantnagar, with a self-addressed envelope of 10″×7″ size bearing postage stamps of Rs. 4.00 by Unregistered Parcel. The application form can also be obtained on payment in cash at the Counters set up in the Admission Cell at Pantnagar and in the GBPUA&T, Camp Office, 8 Cooper Road, Lucknow.

LAST DATE FOR RECEIPT OF APPLICATIONS: **20th March, 1987 with prescribed fee of Rs. 50.00.**
From 21st March to April 4, 1987 with an additional late fee of Rs. 50.00 for Pantnagar Centre only.

O.S. Misra
REGISTRAR

CLASSIFIED ADVERTISEMENTS

ALL INDIA INSTITUTE OF MEDICAL SCIENCES

ANSARI NAGAR, NEW DELHI - 110029

ADVERTISEMENT NO. 2/86-ESTT. I.

Applications will be received by the Director, All India Institute of Medical Sciences, Ansari Nagar, New Delhi - 110029 from Indian citizens upto the **3rd March, 1987,** on the prescribed forms available on request for the following temporary posts:

1. **Professors** : (Seventeen)

Three for (1) Anaesthesiology and Two for (2) Obstetrics and Gynaecology and One each for (3) Cardiothoracic and Vascular Surgery (4) Neuro-surgery (5) Physiology (6) Psychiatry (7) Reproductive Biology (8) Medical Oncology (9) Paediatrics (10) Dermatology and Venereology (11) Cardiology (12) Radio-diagnosis (13) Ophthalmology and (14) Biotechnology.

Pay Scale

(i) Rs. 2500-100-3200 inclusive of NPA for medically qualified candidates.

(ii) Rs. 1700-75-2525 for non-medical candidates.

N.B.: For the post of Professor of Physiology, Reproductive Biology and Biotechnology both medical and non-medical candidates will be considered.

Note: 1. Out of three posts of Professor of Anaesthesiology, one post is for Cardiothoracic Centre and one post is for Neuro-Sciences Centre, at the AIIMS.

2. The post of Professor of Medical Oncology is for Institute Rotary Cancer Hospital, at the AIIMS.

3. The post of Professor of Cardiology is for Cardiothoracic Centre at the AIIMS.

4. The post of Professor of Radio-diagnosis is for Neuro-Sciences Centre, at the AIIMS.

5. The post of Professor of Ophthalmology is for Dr. R.P. Centre for Ophthalmic Sciences, at the AIIMS.

6. The post of Professor of Biotechnology is for Biotechnology Programme at the AIIMS funded by the Deptt. of Biotechnology Min. of Science & Technology.

2. **Additional Medical Superintendent** : (One).

Pay Scale : Rs. 2100-75-2625 inclusive of N.P.A.

N.B.: This post is for Dr. R.P. Centre for Ophthalmic Sciences, at the AIIMS.

3. **Associate Professors** : (Seven)

One each for (1) Biochemistry, (2) Dermatology and Venereology, (3) Surgical Oncology, (4) Medical Physics (Non-medical), (5) Electron-Microscopy (6) Surgery and (7) Medicine.

Pay Scale

(i) Rs. 2100-75-2625 inclusive of NPA for medically qualified candidates.

(ii) Rs. 1600-60-2020 for non-medical candidates.

N.B.: 1. For the post of Associate Professor of Biochemistry both medical and non-medical candidates will be considered.

Note: 1. The post of Associate Professor of Electron-Microscopy is for the Deptt. of Anatomy at the AIIMS.

2. The posts of Associate Professor of Surgical Oncology and Medical Physics (non-medical) are for Institute-Rotary Cancer Hospital, at the AIIMS.

4. **Assistant Professors** : (Eleven)

Three for (1) Bio-technology and Two for (2) Radio-diagnosis and one each for (3) Anaesthesiology (4) Pathology (5) Physical Medicine and Rehabilitation (6) Hospital Administration; (7) Clinical Neuro-Physiology and (8) Obstetrics and Gynaecology for Post Partum Programme.

Pay-Scale

(i) Rs. 1800-75-2100-100-2400 inclusive of NPA for medically qualified candidates.

(ii) Rs. 1300-60-1720 for non-medical candidates.

N.B.: For the posts of Assistant Professor of Hospital Administration and Biotechnology both medical and non-medical candidates will be considered.

Note: 1. The post of Assistant Professor of Anaesthesiology is for Cardiothoracic Centre, at the AIIMS.

2. The post of Assistant Professor of Hospital Administration is for Institute Rotary Cancer Hospital at the AIIMS.

3. The posts of Assistant Professor of Biotechnology are for Biotechnology Programme at the AIIMS funded by the Deptt. of Biotechnology, Min. of Science and Technology.

4. The post of Assistant Professor of Clinical Neurophysiology is for the Neuro Sciences Centre.

5. **Lecturers** : (Twenty Three)

Five for (1) Ophthalmology and Three each for (2) Anaesthesiology (3) Physiology and Two each for (4) Pharmacology (5) Pathology and One each for (6) Anatomy (7) Biochemistry (8) Cardiothoracic and Vascular Surgery (9) Biophysics (10) Medicine (11) Microbiology (12) Community Medicine and (13) Neuro-Surgery.

Pay Scale

(i) Rs. 1500-60-2040 inclusive of NPA for Medically qualified candidates.

(ii) Rs. 900-50-1600 for non-medical candidates.

N.B.: For the posts of Lecturer in Anatomy, Biochemistry, Biophysics, Physiology and Pharmacology both medical and non-medical candidates will be considered.

Note: 1. Out of three posts of Lecturer in Anaesthesiology two posts are for Cardiothoracic Centre, at the AIIMS.

2. The post of Lecturer in Cardiothoracic and Vascular Surgery is for Cardiothoracic Centre, at the AIIMS.

3. The post of Lecturer in Medicine is for Employees' Health Scheme, at the AIIMS.

4. The posts of Lecturer in Opthalmology are for Dr. R.P. Centre for Ophthalmic Sciences, at the AIIMS.

Reservation : Two posts of Lecturer in Physiology and one post each of Lecturer in Anaesthesiology for Cardiothoracic Centre, Neuro—surgery, Biophysics and Pathology are reserved for Scheduled Castes candidates. One post each of Lecturer in Pharmacology, Pathology, Medicine, Anaesthesiology and Ophthalmology is reserved for Scheduled Tribes Candidates.

Note: In case of non-availability of suitable Scheduled Castes Candidates for one post of Lecturer in Physiology and Lecturer in Anaesthesiology for Cardiothoracic Centre and non-availability of suitable Scheduled Tribes Candidates for the post of Lecturer in Pathology, Medicine and Pharmacology, these posts will be treated as unreserved and general candidates would also be eligible to apply for these reserved vacancies. The general candidates would however be considered only if no suitable Scheduled Castes/Scheduled Tribes Candidates are available for appointment to the vacancies reserved for them.

6. **Financial Adviser :** (One)

Pay Scale : Rs. 1500-60-1800-100-2000.

7. **Application Programmer :** (One) (Reserved for Scheduled Tribes candidates).

Pay-Scale : Rs. 700-40-900-EB-40-1100-50-1600.

8. **Chief Supervisor Medical Social Work:** (One). (For Orthopaedics Department).

Pay-scale : Rs. 1100-50-1600.

9. **Superintending Radiographer :** (One) (For IRCH). (Reserved for Scheduled Castes candidates).

Pay-scale : Rs. 700-40-900-EB-40-1100-50-1300.

10. **Biochemist Senior :** (One). (For Clinical Chemistry Lab).

Pay-scale : Rs. 1100-50-1600.

11. **Blood Transfusion Officer :** (One). (For CN Centre).

Pay-Scale : Rs. 1100-50-1600 plus NPA.

Note: In case of non-availability of suitable Scheduled Castes and Scheduled Tribes candidates for the post of Application Programmer and Superintending Radiographer, these posts will be treated as unreserved and general candidates would also be eligible to apply for these reserved vacancies. The general candidates would, however, be considered only, if no suitable Scheduled Castes and Scheduled Tribes candidates are available for appointment to the vacancies reserved for them.

N.B.: 1. All posts carry usual allowances as admissible to Central Government servants of similar status stationed at Delhi/New Delhi.

Note: Scheduled Castes and Scheduled Tribes candidates called for interview will be paid travelling allowance as per rules of the Institute.

Upper Age Limit : 50 years for teaching posts and 30 years for non-teaching posts relaxable for Government servants, Scheduled Castes and Scheduled Tribes candidates or otherwise exceptionally qualified candidates. Upper age limit upto 5 years is relaxable in the case of Scheduled Castes and Scheduled Tribes candidates.

N.B.: The essential qualifications are relaxable at the discretion of the Selecting Authority.

Application forms and detailed information sheets can be obtained personally or on written requests accompanied by a self addressed stamped (Re. 1.40) envelope (23 x 8 cm) from the Office of Sr. Administrative Officer, Admn. Block, AIIMS, New Delhi.

BHOPAL UNIVERSITY, BHOPAL

No. 82/BU/Estt/86

Dated : 8-1-87

Advertisement No. 4/86

Applications on plain paper 8 (eight copies) are invited for the following posts in the University Teaching Department so as to reach to the Registrar, Bhopal University, Bhopal on or before **9-2-1987**.

Applications should be accompanied with Crossed IPO for Rs. 15/- in favour of Registrar, Bhopal University, Bhopal for the post of Professor/Reader/Lecturer.

Name of the Post	Department	Qualifications and Specialisation
1. Reader : One	Microbiology	Qualifications as per UGC guidelines M.Sc in any branch of Life Science with specialisation in fermentation technology, Biotechnology/Microbiology/Microbial Genetics/Microbial Physiology and Bio-Chemistry. Good academic records with Doctorate degree or equivalent published work, about five years. Experience of Teaching and/or research provided at least 3 years of these were as Lecturer.
2. Reader: One	Sociology	Qualifications as per UGC guidelines. Specialisation — Modernisation, studies on women, Sociology of Environment.

Note: No TA/DA will be admissible to the candidate if called for interview. The Selection Committee may consider the candidature of any eminent /suitable person in absentia.

REGISTRAR

MASS COMMUNICATION RESEARCH CENTRE
JAMIA MILLIA ISLAMIA

JAMIA NAGAR, NEW DELHI - 110025

Advertisement No. 1/1987

The Mass Communication Research Centre invites applications for the following posts:

I. Professor—TV — (One)
(1500-2500 — likely to be revised).

Educational and other Qualifications

Essential

(i) Degree of a recognised University.

(ii) Degree or Diploma or equivalent in Video Production from a recognised University or Institute.

(iii) At least six years professional experience including teaching in Video Production in an Institution or organisation of rupute.

OR

(i) Master's Degree of a recognised University; and

(ii) At least 8 years professional experience including teaching in Video Production in an Institution or organisation of repute.

OR

(i) Degree of a recognised University or equivalent.

(ii) At least 10 years professional experience including teaching in Video Production in an Institution of repute.

Desirable

Good knowledge of Radio, Film and T.V. media in India and abroad.

II. Reader in Cinematography : (One).

(1200-1900 likely to be revised).

Educational and other Qualifications

Essential

(i) Degree of a recognised University.

(ii) Degree or Diploma or equivalent in the Cinematography from a recognised University or Institute.

(iii) At least 4 years' professional experience including teaching in the Cinematography in an Institution or organisation of repute.

OR

(i) Master's Degree of a recognised University; and

(ii) At least 6 years' professional experience including teaching in Cinematography in an Institution or organisation of repute.

OR

(i) Degree of a recognised University or equivalent.

(ii) At least 8 years' professional experience including teaching in the Cinematography in an Institution or organisation of repute.

Desirable

Good knowledge of Radio, Film and TV medium in India and abroad.

III. Producer-TV — (One).
(700-1300 likely to be revised).

Educational and other Qualifications
Essential

(i) Hons. Degree from recognised University or its equivalent.

OR

Degree or Diploma in T.V. Production/Film Production from a recognised Institute.

OR

Three years experience of making short films/documentaries.

OR

Good knowledge of contemporary affairs of social and cultural environment and traditions of the country.

(ii) Proficiency in English, Hindi or Urdu.

(iii) Experience of three years or more in Television Production.

(iv) Ability to handle a wide variety of subjects and formats for production of T.V. programmes including short films, documentaries.

Age : Between 23 and 35 years.

IV. Production Manager — (One).
(700-1300 likely to be revised).

Educational and other Qualifications
Essential

(i) Degree of a recognised University or equivalent with five years experience in a Film/TV Production organisation of repute in a responsible capacity including experience in handling Studio staff and making arrangements for film shooting programmes.

OR

Degree/Diploma in Direction or Film/TV Production from a recognised Institute or equivalent.

(ii) About three years experience in a production department of a Film/TV Production organisation of repute in a responsible capacity.

Desirable

(i) Knowledge of Urdu-Hindi.
(ii) Administrative experience.

Age : Below 40 years.

V. **Care-Taker** — (One).
(425-700 now revised to 1400-2300).

Educational and other Qualifications
Essential

(i) Degree of a recognised University.

(ii) At least three years experience in watch and ward work in Government/semi-Government/Public Undertaking or Institution of repute.

Desirable

Experience in Caretaking-cum-Security work. Preference will be given to ex-servicemen.

Age : 40 years and below.

VI. **Receptionist** — (One).
(425-700 now revised to 1400-2300).

Educational and other Qualifications
Essential

(i) Degree of a recognised University.

(ii) Three years experience in public relation office as Receptionist or in a public sector or a private establishment.

Desirable

Good personality.

Age limit : 30 years and below.

Note: Any of the qualifications mentioned above can be relaxed at the discretion of the Selection Committee in the case of candidates otherwise exceptionally qualified.

D.A., C.C.A.; H.R.A.; P.F. Gratuity, Pension and other benefits will be given as per Jamia Rules.

Application forms can be had from the Administrative Officer, Mass Communication Research Centre on any day except Sundays and Holidays, either personally between 10.00 a.m. to 12.00 noon or by sending a self addressed and stamped envelope. Application should be accompanied with crossed Indian Postal Order or Bank Draft for Rs. 7/- (Rs. 2/- for SC/ST candidates) in the name of the Administrative Officer, Mass Communications Research Centre, Jamia Millia Islamia, Jamia Nagar, New Delhi - 110025.

The last date for receipt of application is **19-2-1987.**

M. B. Mughal
ADMINISTRATIVE OFFICER

UNIVERSITY OF NORTH BENGAL

F.22/Advt./Estt./32/R-86 Dated : 30-12-86

Applications in prescribed forms are invited from Indian Citizens for the post of Reader in Sociology and Social Anthropology (Specialisation : Industrial/Urban Sociology) (post one) in the scale of pay of Rs. 1200-1900/- with other allowances and benefits as per University rules.

Qualifications : For Reader as prescribed by the University Grants Commission. Details of qualifications for Reader may be obtained with application forms.

The post is reserved for candidate belonging to S.C./S.T. provided he fulfils the essential qualifications laid down. If S.C./S.T. candidate is not available or not found suitable, post will be filled up from general categories. Hence non-S.C./S.T. candidates may also apply. Choice of selection committee may not necessarily be confined to those who apply formally. No application except in prescribed application forms will be considered.

Prescribed application forms may be obtained from the office of the Registrar personally on payment of Rs. 5/- (Rs. 3/- for S.C./S.T.) in cash at the University Cash Counter or by sending a self addressed envelope of 25 x 13 cms. affixed with stamps worth Rs. 1.70 accompanied by crossed I.P.O./Bank Draft of Rs. 5/- (Rs. 3/- for S.C./S.T.) in favour of the University of North Bengal. Filled in application forms (6 copies) alongwith one self-addressed unstamped envelope must reach the Office of the Registrar, P.O. North Bengal University, Dist. Darjeeling, Pin : 734430 on or before **14th February, 1987.**

REGISTRAR

SARDAR PATEL UNIVERSITY

P. B. No. 10, Vallabh Vidyanagar-388 120
Gujarat, India

Invites outstanding original research works of merit, carried out during 1981 to 1986 in "Electronics" from researchers of Universities or Institute deemed as Universities or Institutes of National Level for the award of a cash prize and a Gold Medal both amounting to Rs. 5,000/- under "Hari Ohm Ashram Prerit Shri Harivallabhdas Chunilal Shah Research Endowment" which should reach the University latest by **16-3-1987.**

A speciman of application form and the terms and conditions can be had from the Sardar Patel University by sending a self-addressed envelope affixed with stamps worth Re. 1/- or in person.

REGISTRAR

CENTRAL SCIENTIFIC INSTRUMENTS ORGANISATION

(COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH)

SECTOR-30, CHANDIGARH-20

ADVERTISEMENT NO. 1/87

Applications are invited for the following post in Central Scientific Instruments Organisation, Chandigarh :

1. Assistant Surgeon Grade I (Medical Officer) : (One Post).

(Rs. 700-40-900-EB-40-1100-50-1300 (plus Non-practising allowance @ 25% - subject to a minimum of Rs. 150/- and maximum of Rs. 400).

Qualifications : M.B.B.S. or equivalent degree with experience.

Job Requirements : Selected candidate will work as full time Medical Officer in the CSIO Clinical Centre, Chandigarh. Private practice is not allowed.

The total emoluments at the minimum of the pay scale will be Rs. 1999.30 (excluding Non-practising allowance). The scale of pay, Non-practising allowance and other allowances are subject to revision on acceptance of the IVth Pay Commission recommendations.

Application forms can be obtained, free of cost, from the Administrative Officer (SG) Central Scientific Instruments Organisation, Sector-30, Chandigarh - 160020 upto **21-2-87**. A self-addressed envelope (23 cms, x 10 cms.) duly affixed with **Re. 1.40** Paise postal stamp, indicating the number of advertisement and post applied for, should accompany the request for obtaining the application form by post. Candidates should send the Indian Postal Orders with the completed applications and not with the requests for forms. Completed applications in the prescribed form, together with non-refundable application fee of Rs. 8/- (No application fee in case of SC/ST candidates) in the form of crossed Indian Postal Order drawn in favour of the Director, Central Scientific Instruments Organisation, Chandigarh should reach the Institute not later than **14-3-87**. Indian Postal Order drawn before the publication of this advertisement will not be accepted. The Postal Order should clearly indicate the name of the Post Office issuing Indian Postal Order failing which the application will not be entertained.

Application should be supported by attested copies of certificates/testimonials relating to educational qualifications, date of birth, experience and original community certificate in respect of Scheduled Castes/Tribes from the appropriate authority.

For regular post of Asstt. Surgeon (Grade I) (Medical Officer) in CSIO, appointment will be on contract basis for 6 years unless the selected candidate happens to be permanent CSIR/Govt. employee. Fare limited to single 2nd class rail fare by the shortest route from the place of residence/actual departure whichever is nearest will be defrayed to and fro Chandigarh after interview subject to production of Cash Receipt/Bus Tickets.

The post is temporary and carries usual allowances admissible to Central Govt. Employees. Services of incumbent are transferable anywhere in India. Candidates already working in Govt. Departments/Undertakings/Autonomous Organisations, should send their applications through proper channel. Advance copy of the application will be considered only if the original is received through proper channel within ten days after the last date prescribed for receipt of applications. Applications incomplete in any respect or received after the last date, for whatsoever reasons, will be rejected. Canvassing in any form and/or bringing in any influence, political or otherwise, will be treated as a disqualification for the post.

Since it is not possible to call all the candidates for interview, the applications will be shortlisted for the purpose and the decision of the Institute will be final in this regard.

"INTERIM ENQUIRIES WILL NOT BE ATTENDED TO".

BANARAS HINDU UNIVERSITY

VARANASI-221005

Advertisement No. 10/1986-87

APPLICATIONS are invited for the undermentioned post. The benefit of Provident Fund/Pension, Dearness Allowance, House Rent Allowance and City Compensatory Allowances are admissible according to University rules. The retirement age of the University employees is 60 years. The appointment will be made on one year probation. Higher starting salary within the grade is admissible to specially qualified and experienced candidate.

Application will be entertained on the prescribed form duly supported with a Bank Draft or Crossed Indian Postal Orders of Rs. 10/- (of Rs. 2.50 for the candidates belonging to Scheduled Caste/Scheduled Tribes category) in favour of the Registrar, B.H.U. towards application fee. Application form will be supplied on receipt of Crossed I.P.O./Bank Draft of Rs. 2/- in favour of Registrar, B.H.U. and self-addressed envelope of 23 cm x 10 cm size carrying stamps of Rs. 1.80. Candidates called for interview will be paid actual Railway fare by the second class plus reservation charges for sleeper, if paid, and/or actual Bus fare from the present residence both ways by the shortest route as per university rules. No other expenses will be paid.

Application alongwith attested copies of certificates and marksheets in support of the qualifications and experience mentioned in the application and be addressed to the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi - 221005. INDIA.

The last date for receipt of application in the Office of the Registrar (Selection Committee Section), Banaras Hindu University, either by post or by hand will be **FEBRUARY 20, 1987**. Application will be received by hand at the Counter only upto 2.30 P.M. on each working day till the last date. No application shall be entertained after the last date from external, in-service employees and the candidates residing abroad.

1. Principal : (One) (Mahila Mahavidyalaya) (For Ladies only).

Grade : Rs. 1500-2500.

Qualifications

Essential

1. A first or high second class Master's Degree in Science or Arts or an equivalent qualification.
2. A Doctorate Degree or published work of a high standard in reputed journals.
3. Not less than 10 years teaching experience in a University or a Degree College.

Desirable : Adequate administrative experience in a responsible position in a College/University.

Note: Those who had already applied in response to Advertisement No. 11/1983-84 need not apply again but may send their latest bio-data.

BHARATHIAR UNIVERSITY : COIMBATORE-641 046

NOTIFICATION NO. 3612/E3/87 **DATED : 12-1-1987**

Applications are invited for filling up the following posts for a UGC Project on Eradication of Illiteracy. (The posts are temporary to be continued upto **31-3-1990**).

Name of Post	No. of Posts	Qualification and Experience
Project Officer	Two (One for Population Education)	(a) **Essential :** (i) Good acdemic record in the subject of Adult Continuing Community Extension Education Community Development/Population Studies from a recognised Indian University or an equivalent degree from a foreign University. (ii) M. Phil. or Ph.D. in a subject related to adult learning or Ph.D. in a subject under Social Sciences or Education of Evidence of published learning materials and learning resources on areas listed in (i) above or published research in any of the relevant area/areas indicated above. **OR** (i) Good academic record in Social Sciences/Social Work/Humanities/Education/Sciences/Home Science/Population Studies. (ii) Post Master's diploma in Adult and Continuing Education from a recognised Indian University or an equivalent diploma/degree from a foreign University. (iii) M. Phil or Ph.D. in a subject related to adult learning or a Ph.D. in a subject under Social Sciences or Education or Evidence of published learning materials and learning resources on areas listed in adult/continuing community/extension education/Community development or published research in any of these area/areas. (b) **Desirable** Two years experience of field work on a subject having bearing on Adult/Continuing/Extension/Community / Non-formal Education/Community Development. **OR** Two years teaching experience in the subject of Adult and Continuing Education at graduate/post graduate levels.

Scale of Pay : (Rs. 700-1600).
Maximum Age as on 1-1-1987 :
— 35 years.

The Rules of reservation for Backward Classes and Scheduled Castes and Scheduled Tribes will be followed as per rules.

Application form can be had from the Registrar, Bharathiar University, Coimbatore - 641 046 on requisition accompanied by a selfaddressed and Rs. 1.40 stamped envelope (25 cm x 10 cm). Name of the post for which the application is intended shall be specified in the requisition.

Attested copies of certificates showing qualifications, age, experience, Community etc., should be sent alongwith the application in the prescribed form (in octuplicate) together with Registration fee of Rs. 10/- in the form of Crossed Indian Postal Order dated not earlier than **1-1-1987** drawn in favour of the Registrar, Bharathiar University, Coimbatore - 641 046.

Candidates in service should send their applications through proper channel.

[Completed applications should reach the Registrar on or before **16-2-1987**.

Incomplete applications, applications without the required registration fee and applications received after the due date will not be considered.

REGISTRAR

ROHILKHAND UNIVERSITY

BAREILLY

CORRIGENDUM

Please read "One Post of Reader of Plant Science" as against two posts as notified Vide advertisement No. RU Reg/F-30/86/561-710 Dated 18-12-1986.

REGISTRAR

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002. Grams: ASINDU. Phones: 3315105, 3313390, 3312305, 3310059 and 3312429
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

University News

MONDAY, FEBRUARY 2, 1987 Rs. 1.50

ASSOCIATION OF INDIAN UNIVERSITIES
and DEPARTMENT OF YOUTH AFFAIRS & SPORTS
GOVT. OF INDIA
PRESENT
COLOU CULTURAL EVENING
BY
UNIVERSITIES

Kabui Folk Dance performed by student artists of Banasthali Vidyapeeth at the National Youth Week celebrations held in New Delhi on 17 January, 1987.

Ministry of Science & Technology
Department of Science & Technology
Science & Engineering Research Council

NEW GUIDELINES FOR R & D PROGRAMMES

The Department of Science & Technology, Government of India, as a part of its S & T promotional activity has been supporting R & D programmes under two specific schemes viz. Science and Engineering Research Council (SERC) and General Research Scheme (GRS). These schemes have made significant impact through initiating major programmes in newly emerging and frontline areas of Research in the country in addition to enhancing the general research capabilities in various fields. In particular, the approach to the promotion of selected Thrust Area Programmes has been accepted nationally and will continue in the future.

Based on a review of the existing schemes, it has been decided to integrate both the schemes (SERC & GRS) into one single R & D promotional scheme under the Science and Engineering Research Council. Thus SERC will provide an integrated and cohesive approach for supporting R & D programmes in the country. Accordingly, all R & D proposals will henceforth be reviewed by the Science and Engineering Research Council. The objectives of the SERC will be as under:

(i) To promote research in newly emerging and frontline areas of Science and Engineering including multi-disciplinary fields;

(ii) To selectively promote the general research capability in relevant areas of Science and Engineering taking into account existing research capabilities of the host institution; and

(iii) To encourage young scientists to take up challenging research and development activities.

Research proposals from scientific institutions/research laboratories under various Scientific Agencies/Departments which are in line with their normal research activities may not be considered for support under SERC. Only research proposals outside the normal activities of such institutions (e.g. National R & D Programmes, Programmes in newly emerging and frontline areas etc.) will be considered. Further, proposals which involve purely survey-oriented work and routine studies will not be normally considered.

Past experience has revealed that some of the proposals received by the Department do not indicate specific research objectives and consist of generalities and involve large funding in terms of equipment, manpower, etc. In fact, the well-defined objectives of the proposals should be such that they are achievable in the framework of a time-bound project, using as far as possible, existing infrastructures in the host institution. The scientific community should, therefore, ensure that research proposals being written up involve new and innovative ideas which can be pursued in a planned manner within the duration of the project and projecting only the very essential requirement of funds.

It is hoped that the scientific community will take up the challenge and undertake specific R&D programmes involving first rate science and possible application with optimal requirements of funds to achieve the above specific objectives of SERC.

It has also been decided that, in future, research proposals from the scientific community will be entertained only twice during a year. *Proposals in the prescribed format obtainable from DST should reach between 1st to 30th April and 1st to 31st October of each calendar year.* Through this approach, all efforts will be made to communicate a decision within six to nine months.

For further details, please contact:

Secretary
Department of Science & Technology
Technology Bhavan, New Delhi - 110 016.

Telephone : 662268
Tlex : 031 - 61805 - DST IN
031 - 66096 - DST IN
Telegram: SCIENCTECH

16 FEB 1987
C. F. T. R. I., MYSOR

UNIVERSITY
NEWS

VOL. XXV FEBRUARY 2
No. 5 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

National Humanities Documentation Centre

L.S. Ramaiah*
T.V. Prafulla Chandra*

Among the three broad areas of the universe of knowledge, namely, natural sciences, social sciences and humanities, humanities has the distinction of being the oldest one with an enviable contribution to human civilization. As E.H. Gombrich has rightly said humanities serve to recover, preserve and interpret the cultural heritage of mankind.

There is no consensus among the academics as to what subjects constitute humanities. At the time of establishment of the National Endowment for the Humanities, the U.S. Congress defined the humanities as follows: "Humanities includes, but is not limited to the study of the following: languages, both modern and classic; linguistics; literature; history; jurisprudence; philosophy; archaeology; the history, criticism, theory and practice of the arts; and those aspects of the social sciences which have humanistic content and employ humanistic methods." It may be pointed out here that in recent years history and linguistics are being considered as social sciences.

For the purpose of our discussion and in the Indian context, it is preferable to adopt the University Grants Commission's practice which includes the following subjects under humanities:

1. Classical languages (Sanskrit, Pali, Prakrit, Arabic and Persian);
2. Modern Indian Languages (Assamese, Bengali, Gujarati, Hindi, Maithili, Malayalam, Marathi, Oriya, Punjabi, Tamil, Telugu and Urdu);
3. English and Foreign Languages;
4. Linguistics;
5. Philosophy;
6. History;
7. Art History; and
8. Museology.

Characteristics of Humanities Scholars

Of all the research scholars, those working in the area of humanities are the most book-oriented ones and have a strong tendency to work alone in libraries. Through extensive study of critical works, they try to know different viewpoints so as to widen their perspective. This enables them to present their subjective viewpoint in their own individualistic style.

For humanities scholars, the sources of information are not limited to printed material alone; they prefer to examine material such as original manuscripts, printer's proofs, various editions of texts and so on. For example, a researcher working on R.K. Narayana's *Malgudi Days* is likely to gain valuable insights into the author's creative mental process if he has the opportunity to refer to the original manuscript with all its corrections and alterations.

**Central Institute of English and Foreign Languages (CIEFL) Library, CIEFL, Hyderabad*-500 007.

Another characteristic feature of humanities scholars is their reluctance to entrust the task of literature search to their assistants. They spend most of their time among the library stacks browsing a variety of documents, both in terms of their form and historical coverage. In other words, there is a high degree of personal interaction between the humanities scholar and his source materials. For instance, an art historian attempting a critical evaluation of late Sobha Singh's paintings should see the painter's works in original if he has to do justice to his study.

Shifts of interest is another distinctive feature of humanities scholarship. For example, to the present day scholar some of the documents and historical periods may not be worthy of research exploration. But, some lone scholar may come out with a new finding which is likely to arouse interest in that area.

Humanities research demands a strong collection of recent books as well as old books. In fact, it is a general practice to estimate the strength of a humanities library in terms of the number of old and rare books it has in its collection.

Humanities Research in India

An analysis of subject-content of doctoral theses accepted by Indian universities during 1857-70 revealed that 60 per cent of research has been carried out in the area of natural and physical sciences, followed by humanities (26 per cent) and social sciences (about 14 per cent).

Also, subject analysis of major research projects approved by UGC during 1974-75 to 1982-83 showed that humanities subjects were in the lead when compared to social sciences and professional subjects (such as commerce, library and information science, education, business management) as shown below:

Humanities	224	Projects
Social Sciences	117	,,
Professional Subjects	68	,,

It is clearly evident from the above that a substantial amount of research is being done in the area of humanities in Indian universities.

Humanities Scholars Neglected

In India, the information needs of humanities scholars are badly neglected. We do not have a national documentation centre for humanities. Humanities is the only area in the universe of knowledge which does not have a national documentation centre. Indian National Scientific Documentation Centre (INSDOC) and NASSDOC (National Social Science Documentation Centre (NASSDOC) have been established in 1952 and 1970 respectively to provide bibliographical and information services to scholars working in these areas. But, unfortunately no steps have been taken to start a National Humanities Documentation Centre (NHDC). Due to the absence of NHDC, the humanities scholars are facing innumerable problems in course of their study and research. They do not have reference books such as union catalogues of books and periodicals to check where the documents required by them are available. They have to spend considerable amount of money and time making frantic searches for relevant documents.

Need for Coordination

We have many great libraries with rich collections like Saraswathi Mahal Library (Tanjore), Khuda Baksh Oriental Public Library (Patna), Bhandarkar Oriental Research Institute Library (Pune) and so on. But, these institutions are functioning under severe financial constraints and are as such unable to provide comprehensive reader services and ensure proper preservation of their collections. It would be better if a central agency such as the NHDC is established to coordinate the functioning of these libraries and to provide necessary leadership in adopting latest techniques for technical processing of books and their preservation.

Another important factor is the imperative need for resource sharing. No library can claim to be self-sufficient and capable of meeting all the book requirements of its readers. This is more so because of the exhorbitant increase in the cost of books. In this scenario, resource sharing is a must.

Lack of indexing and abstracting services in most of the subjects is a pressing problem affecting the Indian humanities scholars. Although we have general indexing services such as the *Guide to Indian Periodical Literature* and *Index India*, their coverage of humanities leaves much to be desired.

National Humanities Documentation Centre (NHDC)

To provide documentation and information services to humanities scholars, a NHDC may be set up at New Delhi, with a regional centre in each state. The main functions of NHDC will be: (1) maintenance of union catalogues of humanities periodicals, (2) compilation of current and retrospective bibliographies of humanities documents in major public libraries and university libraries; (3) collection and preservation of manuscripts and art works; (4) preparation of retrospective indexes of humanities periodicals; (5) maintenance of information on research in progress; (6) acquisition of research dissertations and reports in humanities; (7) provision of bibliographic services on request; (8) offering current awareness services such as Selective Dissemination of Information (SDI), lists of additions, etc.; (9) providing translation services from Indian and foreign languages; (10) encouraging research in humanities by providing travel grants to visit humanities libraries; (11) preparation of directories of humanities personalities such as authors, painters and also of institutions engaged in the study and research of humanities; (12) providing quick and efficient photocopying and microfilming facilities; (13) functioning as a clearing house for all information relating to humanities: and (14) acting as the contact-point for cooperation with organisations having similar aims, both in India and abroad.

In view of the magnitude and complexity of the functions involved, computers may be employed to avoid time-lag. To begin with, the operations in the headquarters at Delhi and some of the regional centres located in major cities such as Bombay, Calcutta, Madras and Hyderabad may be computerised. Also, fast communication facilities such as telex, facsimile transmission should be provided to these centres for quick transfer of reader's requests and information.

In the figure, (given on next page) the proposed information system for humanities along with its various constituents has been schematically depicted. The regional sub-system of only Andhra Pradesh (AP) has been shown for the sake of clarity. The NHDC-AP Regional Centre will be located at Hyderabad. It will function as the coordinating agency for all bibliographical activities within the region. The constituents of AP regional sub-system will be grouped into two categories:

1. Subject-based Information Centres; and
2. Participating Libraries/Institutions.

1. Subject-based Information Centres

These centres will specialise in a particular subject and try to maintain comprehensive and up to date bibliographic data relating to all matters in that subject. In the figure, the subject areas that may be established in various libraries/institutions have been noted. These centres will maintain union catalogues of books, periodicals and other source materials in their region. They will function as contact-points to all libraries in AP for any information pertaining to their field of specialisation. They will feed the NHDC (Delhi) with all the information generated/gathered by them.

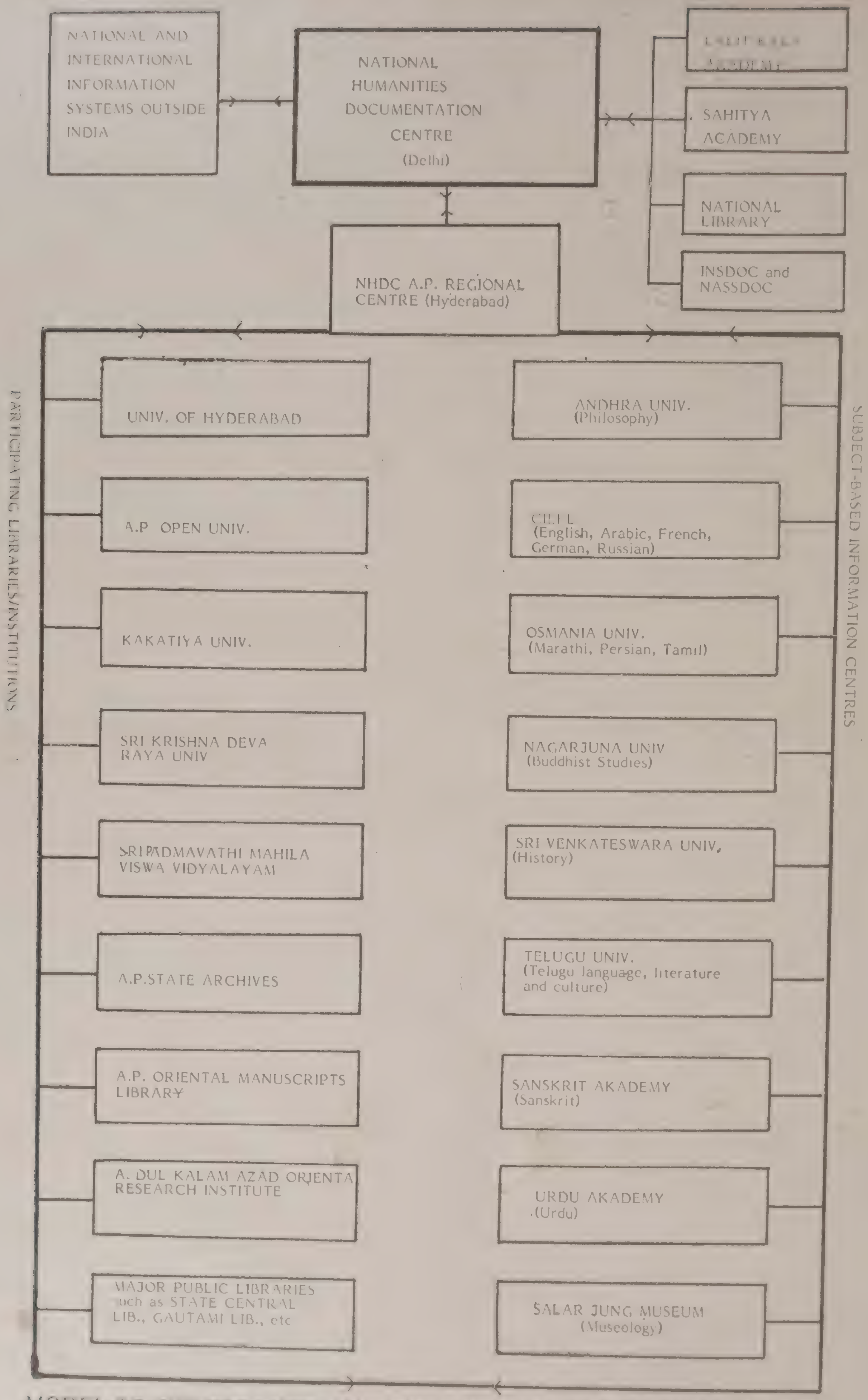
2. Participating Libraries/Institutions

The libraries/institutions participating in the AP regional sub-system will make their collections available for resource sharing. They will transmit the bibliographic information produced in their libraries/institutions to the respective subject-based information centres. In return, they will be receiving such information from the AP-NHDC Reginal Centre and subject-based information centres.

The finances necessary for establishing and running the NHDC and its regional centres may be borne by the Ministry of Human Resources Development. However, the subject-based information centres may be funded by the universities/institutions where they are located.

NHDC, if established, would help in consolidating, preserving and enriching our cultural heritage contained in the valuable and rich library collections scattered throughout the country. NHDC, its regional centres and subject-based information centres will function as efficient communication centres and help in establishing communication channels for free and quick flow of bibliographic information among humanities scholars.

Every humanities scholar, irrespective of his place of residence, should have access to the documents required by him wherever they are located. We must aim at building up such an efficient and elaborate resource sharing system. It is hoped that the Ministry of Human Resource Development and the University Grants Commission would initiate steps for this purpose, and, thereby, help in recovering, preserving and making readily available the documents needed by humanities scholars. □


NATIONAL AND INTERNATIONAL INFORMATION SYSTEMS OUTSIDE INDIA
NATIONAL HUMANITIES DOCUMENTATION CENTRE (Delhi)
LALIT KALA ACADEMY
SAHITYA ACADEMY
NATIONAL LIBRARY
INSDOC and NASSDOC
NHDC A.P. REGIONAL CENTRE (Hyderabad)
PARTICIPATING LIBRARIES/INSTITUTIONS
UNIV. OF HYDERABAD
A.P OPEN UNIV.
KAKATIYA UNIV.
SRI KRISHNA DEVA RAYA UNIV
SRI PADMAVATHI MAHILA VISWA VIDYALAYAM
A.P.STATE ARCHIVES
A.P. ORIENTAL MANUSCRIPTS LIBRARY
A. DUL KALAM AZAD ORIENTA RESEARCH INSTITUTE
MAJOR PUBLIC LIBRARIES such as STATE CENTRAL LIB., GAUTAMI LIB., etc
SUBJECT-BASED INFORMATION CENTRES
ANDHRA UNIV. (Philosophy)
CIEFL (English, Arabic, French, German, Russian)
OSMANIA UNIV. (Marathi, Persian, Tamil)
NAGARJUNA UNIV (Buddhist Studies)
SRI VENKATESWARA UNIV. (History)
TELUGU UNIV. (Telugu language, literature and culture)
SANSKRIT AKADEMY (Sanskrit)
URDU AKADEMY (Urdu)
SALAR JUNG MUSEUM (Museology)

MODEL OF THE PROPOSED NATIONAL HUMANITIES DOCUMENTATION SYSTEM AND ITS A.P. REGIONAL SUB-SYSTEM

IDEAS IN HISTORY—II

B. Sheik Ali*

I

Among all the Indian deities Clio is the one that is most conspicuous by its absence. The weakest link in the brilliant record of ancient Indian scholarship is historical writing. If chronology is the eye of history, what comes from ancient past lacks sight. If history is the presentation of events in their correct perspective, Indians had no historical sense. What surprises us most is that in the midst of Vyasas and Valmikis, Paninis and Aryabhattas, Dhanvantris and Susritis, Kautilyas and Kalidasas, Sankaras and Madhavas, why was a Comte, a Croce, a Spengler, a Toynbee, a Marx, a Gibbon or a Herodotus, not born? The only satisfaction we draw is the negative one. If history is philosophy in motion, Indians could never be excelled. If history is the growth of human mind, Indians surely have a history, although unwritten. If history is the reflection of the essence of human activity, our records are full of them, although they do not conform to the textbook definition of history. There is a debate whether ancient Indians possessed historical consciousness or not. Perhaps it is safe to assert that they did possess historical sense, but it was all oriented to a different purpose of obtaining mental peace, euphemistically called spiritual endeavours.

The point is the criterion or the angle with which we view the legacy of our ancients. If 'ideas in history' is our subject, our literature is so much flooded with ideas that there is nothing in it except ideas. History lies concealed underneath them, as if diamonds packed in a bag and not displayed on the neck. Our legends, myths, traditions, epics, puranas and ITIHASAS do contain so much of historical material that it is futile to say that our ancients lacked historical sense. Ancient Indians did not build historical mansions, but they cut the quarries, brought the material, chiselled the stuff; and drew the plans but did not erect the edifice. They left it for others to do. Those who discussed cosmic consciousness, felt it unnecessary to narrate ordinary events of this planet. Perhaps they thought that human affairs of the type of conflict, confusion; warfare, cheating, looting, change of fortune, rise and fall of dynasties, served no purpose in their scheme of higher intellect. Perhaps the pressing need such as of the Romans or the Arabs to make history justify imperial expansions did not exist with them. Perhaps, the basic philosophy of the people, the social structure of the time, intellectual leadership of the elite, and the psychology of the masses did not permit such an exercise as history writing. A society steeped in the thought that the ultimate purpose of life is liberation from the chain of births and deaths did not bother to think of history, Perhaps the elite were aware that history was Pandora's box whose opening might lead to unknown results, and disturb the entire social structure. That was exactly what happened in Europe on the eve of the French Revolution. The psychology of the people with their contentment, adjustment, compromise, lethargy and immobility did not permit the germination of historical seeds. Perhaps the lack of contact with the outside world, and their not knowing Herodotus or Livy, might have been a factor. Roman historiography emerged only after Rome conquered Greece. Arab historiography followed the Iranian traditions. Even Kalhana, the solitary luminary on our historical horizon, took to history, because he was in Kashmir exposed to the influences of China and the Islamic world. Whatever the reasons our contribution to history was poor in the ancient past, although we did not lack 'ideas' even in that period.

Creative history suits the genius of the people. Others had placed genealogies in chronological order, we placed them in cosmic settings. Others narrate events after they occur, we mention them in advance as if we are predicting the future. Others take note of relative values, we concentrate on absolute values. Others indulge in narrative, expository and annalistic type of history, ours is argumentative, critical and dialectic dialogue. Perhaps it is in this dialectic dialogue that the truth will be perceived. If history is an X-ray apparatus that gives us an idea of the inner working of the mind, we have numerous such machines. Whether they are Hindu PURANAS, or Buddhist JATAKAS, or Jaina PRABHANDHAS, or Veerasaiva VACHANAS or Vaishnava BHAKTI songs, they are all replete not only with philosophy and ethics, but also with an urge for social change. They give us a fairly accurate account of the society with all its customs, manners and abuses, and they exhibit both the strong and weak points in every vital area. If Voltaire is right in saying that history is not the story of the kings but the manners of the people, the mood of the age and the spirit of the

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Vice-Chancellor, Goa University, Panjim, Goa - 403 005.

time, we could claim that our ancients have not after all failed us even in the realm of history.

What we find in the literature of the past is the hard core of history, such as customs and manners, methods of warfare and art of Government, trade and commerce, farming and agriculture, philosophy and religion, education and learning, genealogy of the rulers and such other essential aspects that form the culture. Open the pages of RAMAYANA or MAHABHARATA, and you will have a glimpse of the pulsating life of the people. Yet this literature does contain incongruities. Macaulay was furious on knowing that our kings reigned for thirty thousand years, or that our geography was made up of 'oceans of treacle and seas of butter'. But Macaulay was not furious at Herodotus, who while tracing the origin of the Persian kings had mentioned the story of a vain king who was so proud of the beauty of his own queen that he wanted others to be jealous of him. Therefore, he hid his own minister to watch his queen going to bath; but the queen detected the stranger and passed her judgement that the minister should either face death or kill the king and marry her. Obviously, the latter choice was preferable and thus the origin of the Iranian kings. This is also a story as improbable as that of 'seas of butter'; but the difference is that the Greeks said something that was possible, and Indians said something that was not. Megasthenes mentions in his INDICA that he had heard of the Indians having long ears, so long that they could be matched with those of an elephant, and were so wide that women used them for winnowing the grains. The point to note is that both Greece and India were very close to epic age, when imaginative faculty was at its peak. That proves my point that ideas form the substance and soul of history.

Our ancients had one more aspect of thinking which was unusual; mixing of true with false. What the Westerners say would either be right or wrong; but what we say is both right and wrong. Take the example of Aryabhatta's explanation of the lunar eclipse. Alberuni was amazed at the Indian scientist's knowledge of the alignment of the sun, moon and earth in a particular posture, but was shocked to find the same Aryabhatta saying that a heavenly dragon devoured the moon and hence the eclipse. Alberuni could not comprehend why a scientific fact be thus killed by a myth. But this is Indian psychology which is equally true in the domain of history. What the Europeans say might ultimately turn out to be either right or wrong, but what the Indians say would have an element of both right and wrong. One cannot deny the sharpness of Indian intellect, and this sharpness generates ideas.

Again, our ancients dwell more in the realm of the ideal than that of the real. All aspects of their creative genius whether art, architecture, sculpture, painting, poetry or drama are more idealistic than realistic. Hindu art reveals in variety and complexity, and delights itself in rich decoration. Even the great secular epic, RAMAYANA, presents a possible picture from its second to sixth part, from Rama's exile to his return, but the last part in which mother earth consumes Sita is typical of Indian mind which is restless until it mixes something impossible with the possible. The anatomy of the human figure in Indian sculpture is yet another example. In Greek art human figures gain identity with real human beings, in Indian art they stand for the divine and hence lose proportions. This spirit pervades every walk of life, and they are indicative of the rich variety of thought.

Our legacy at least in one area of history remains unsurpassed. Our ancients did not use paper or papyrus for writing history. They used more solid substance, copper or stone. We possess perhaps the world's largest collection of lithic inscriptions and cooper plates. They are authentic documents on genealogy, chronology, origin of the dynasties, inter-state relations, growth of ideas, and also on social, cultural, religious and economic conditions of the time. But one has to use them with great care, for they are no exception to Indian mentality. They trace the origin of many dynasties to the sun or the moon. They speak of mansions having golden gates. It is upto us to draw the inference that they are only speaking of the prosperity of the people.

The argument that ancient Hindu kings had no interest in history is also not correct. They did maintain in their courts officials called SUTAS whose business was to chronicle the events and keep track of the happenings around them. But their approach to events was also characteristic of the Indian attitude towards life where objectivity was at a discount. These writings cannot be compared to the chronicles either of medieval Europe or of the Delhi Sultans. Bana's HARSHA CHARITA was more a philosophical treatise than sober history. The same thing is true of Asvaghosha's BUDDHA CHARITA or Bilhana's VIKRAMANKADEVA CHARITA. But Kautilya's ARTHASASTRA belongs to a different class, which could be compared to Abul Fazal's AIN-E-AKBARI. ARTHASASTRA was compiled through the ingenious method of appointing village officials, who kept a record of everything that happened in the village, including its trade and agriculture, the number of inhabitants, their caste and profession, their age, their history, occupation, income and expenditure. This information was verified by other officials through their own intelligence. Thus quite modern idea of a demographic survey was known to ancient India.

The most important historical work written around 1148 A.D. is Kalhana's Rajatarangini, a chronicle of Kashmir kings. Kashmir was the only region of the time which can boast of having a historian in the real sense of the term: Even this is an anthology of 8000 highly polished verses in eight books. But we have to appreciate Kalhana's historical sense, when he says that a historian should 'make vivid before one's eyes pictures of bygone age'. He had an idea of the right sources for writing history, and critical mind what to accept and what to reject. He was aware of the purpose in undertaking his work, which was to be "useful for kings as a stimulant or as a sedative, like a physic, according to time and place". He has dealt on the merits of benevolent monarchs and comes close to Plato's idea of philosopher king. He has touched on the drawbacks of feudalism, and has suggested reforms in the form of Government. He detests bureaucracy, calls it a stumbling block in the path of progress and he passed the most uncharitable remark about them. "The crab kills its father and the white ant destroys its mother, but the ungrateful KAYASTHA, when he becomes powerful, destroys everything". Who says Indians lacked novel ideas? Kalhana regarded himself primarily as a poet and only secondarily as a historian. He supports a strong Government; and seems to anticipate what Napoleon said later: "If the people call a king a kind man, his reign is a failure".

The SANGAM classics of the South are rich in historical material. They throw a flood of light on social, cultural, political and economic conditions of the time. The vast body of SANGAM literature was the product of a literary academy, which flourished under the patronage of the Pandyan rulers. Their age could be roughly between 500 B.C. to 500 A.D. The celebrated KURAL is also assigned to the Sangam age. They are all anthologies containing pearls of wisdom, but we can glean through them such mundane affairs also as wars, kings, institutions and administration.

Thus ancient Indian was full of ideas FOR history, if not ideas IN history. They have discussed causes, conditions, consequences and processes of events, without applying them to any region, period or personality. Long before Dionysius of Halicarnasus defined history as philosophy teaching by example, they had demonstrated fully its first part although not the second. The literature of the period is all about man, and all that concerns in history, but the whole thing is disjointed, isolated and incoherent, as if a jig-saw puzzle that needs arrangement and labour to put it right. Painstaking research may reveal that there is much more in it than meets the eye. If history is the barometer to gauge a society's culture, and if culture is that complex whole which includes knowledge, belief, art, morals, customs and such other capabilities acquired by man as a member of the society, then ancient India would stake a high place for history, although of a different sort. They had a rose garden but they did not pluck flowers for making a bouquet out of them.

II

When we come to medieval period the position is entirely different. The establishment of Delhi Sultanate inaugurated a new era in historical thought. It presented a series of Indian chronicles, which according to Professor Dodwell were far superior to the English chronicles of medieval times. The Semetic people had a genius for history, and the Arabs evolved a technique of their own, called isnad, to check the veracity of every statement. The Arab contact with Greece, Rome and Iran further refined their historical taste. The Arabs were great travellers, and their contact with different cultures enabled them to broaden the scope of history. The illustrious example is Ibn-e-Khaldun, whose prolegomena has integrated the science of history with political philosophy. Sociologists have hailed him as the founder of social and economic interpretation of history, political scientists have ranked him with Aristotle, and Von Kremer calls him the greatest historian of culture.

By the time Muslims came to India they had already formulated their ideas on history. Unlike the Christian chronicles written by monks, the Muslim chronicles were written by lay-men, by men of affairs, and by those who had witnessed the drama, and sometimes, taken part in it. Ideas marched from the mythological, theological and legendary phase of ancient India to a more secular, rational and authoritative phase under the Muslims. The chronicles are full of details following the pattern of Livy and Tacitus to thrill and amuse readers through an exceedingly polished style.

Although the Muslims had a passion for history, it did not figure high in their scheme of intellect. It was religion and philosophy at the top. History was essential as a course for the education of the princes and nobles, and the historians found an honoured place in the court of the Sultans. History writing by Muslims in India did not conform to rigid pattern of Arab ISNAD but followed Iranian tradition of leaning on authority, on reporters, and on hear-say. The historian was a narrator and not a researcher. Happenings were presented without inquiring into causes, conditions and processes. The common man was neglected, and concentration was on higher-ups. Although laymen wrote history, religious hold on history was not altogether absent. God was held responsible for all that happened in history. God was seen working through individuals. The Muslim historical thought did not follow the MUTAZILLA school, which was extremely rational, but followed the ASHARITE school, which believed that the present followed the past, but not the outcome of the past. They further thought that there was no set pattern in history but a succession of divine acts, and that the events were shaping in a fashion whose design is best known only to God. Such ideas were close to Christian transcendentalism and Hindu fatalism. They did not believe in social forces acting upon one another to generate the seeds of history. The Islamic thought centred on the idea that all actions and events happened on their own because of the Divine Will, and not because of any modification, reaction or impact of any other event on them. Their ideas leaned heavily on providential theory. The Muslim historian was seated as if in the tail end of the train, from where he could get only the rear-view of the scene, and not the twists and turns of the track nor the direction of his journey, he just got an idea of the area he covered. History was theocratic to him, but not humanistic, it was purposeful and guided to him but not inter-related and progressive.

Despite these shortcomings, there was a positive side as well. The sheer number of history works produced is staggering. The very gist of them runs into eight volume of Elliot and Dowson. The Muslims gave to India a kind of literature that was not existing before. They were aware of the utility of history. Barni asserted, "My life has been spent in a minute examination of books. . . I have not seen as many benefits in any other form of learning or practical activity as I have in the science of history". To Barni history was a means to strengthen reason and virtue, and a guide to foster progress and learning. Another positive factor was the adoption of one single era, Hijra, throughout the Islamic world, which avoided the confusion of chronology. Even the Christian calendar counted sometimes with the nativity of Jesus, sometimes with his death, and sometimes with Easter, which was always a changing date. The position in India had been much worse with numerous eras, and hence one single uniform era was a forward step in historical writing.

Apart from history produced by professionals at the court, we have history from the Sufi saints, which is valuable in thought. This is very helpful to us for socio-religious movement of the times, and for the growth of intellectual ideas. The letters, the table-talk, the metaphysical and ethical discourses, the call to eschew sin and the advocacy of liberalism, throw a flood of light on intellectual history. We know that the BHAKTI movement levelled down the barriers of caste, creed and class, and took its stand on the bedrock of humanity. The Sufis did have a part in this movement. Their writings reflect the spiritual development of Muslim society in particular, and of the religious upsurge of Indian Society in general. In Sufi literature we find three elements, pure history, pure fiction and pure ethics. The purpose is didactic; common man will understand better through parables, hence the fables and anecdotes, the morals needed to be superimposed on the existing society to reveal what was wanted and what was available—the frailties and the abuses, the strong and the weak points, hence pure history, the goal was higher knowledge, IRFAN, through a technique, TARIKHAT, for gaining the ultimate truth, HAQUIKAT, hence pure ethics. A part of this vast literature does contain pure history giving us an insight into the social structure of the time, the economic conditions of the people, the mood and tensions of the period, and the need for a change. It also indicates the influence of Islam on Hinduism, of Hinduism on Islam, of hopes and fears of a minority amidst a majority, and of the majority at the hands of a powerful minority, and the impact of Hindu customs, manners and ways of thought on Muslim society, and vice-versa. The Sufi literature based on love, service, brotherhood and equality had great effect on the lower section of the Indian society.

The Sufis produced three kinds of literature, books on pure mysticism, books on the lives of the saints and their discourses, called MALFUZAT. The last two have much historical significance, which indicate liberalism, electicism, egalitarianism and devotion. Most of the saints led the life of a common man, and sometimes accepted office. Shaikh Hamid-ud-din cultivated fallow land, and declined land grant offered to him by Iltutmish, Shaikh Hamid was a QAZI of Nagore. Shaikh Ahmed Sirhindi had political ideas of his own, he was a revivalist opposed to the religious policy of Akbar, and he carried on correspondence with the political figures of the time. His letters indicate the inner working of a section of Muslims on issues of political nature.

What interests most to social history is the stuff served as table-talk of the Sufis, the MALFUZAT. They throw much light on the language and literature of the time, life and conditions of the people, and exhortations for better life. One of the Sufis warned, "If you fly in the air, you are a fly, if you walk over the water, you are a straw, but if you win a heart you are something". This pursuit of "something" is the key to the historical thought of the time. Hamid Qalandar in his KHAIR-UL-MAJALIS makes moving references to the famine of Muhammad-bin-Thughluq's time, the Sufi urged the saints to help the poor, to expose black-market and to assist Government agencies in relief work. We get interesting side-lights on the character of the Sufi saints. Balban said of Qazi Minhaj-ud-din Siraj, the author of TABAQAT-I-NASIRI, that Siraj feared neither God nor the king, only his own conscience.

Yet another kind of very popular literature Muslims introduced in India was the WASIYATH-NAMAHS or the precepts of eminent rulers and statesmen to their successors. They were read with great interest by political thinkers. For example, Balban advised his eldest son, Prince Muhammad: (1) Do not consider the task of ruling over people an ordinary or trifling affair. (2) The heart of a king reflects the glory of God, the heart refuses to reflect if it is impure. (3) He alone is a real king whose officers administer absolute justice and root out oppression. His own example would be followed by others. (4) Do not incur the displeasure of God by indulging in luxuries. (5) Kingship and bravery are twins. (6) Kingship is not possible without justice, beneficience, pomp, army and treasury. (7) Do not undertake a campaign where you are not sure of success, Kingship cannot stand upon dishonour and humiliation, do not personally lead expeditions against lesser foe. (8) Keep the army, the subjects and the merchants happy. It is a long treatise on statecraft. It reminds us of what Thucydides had admonished long ago: Not every brave man wants war, justice is better than expediency, nemesis follows upon good fortune; love of fame often lures to destruction, and revenge though sweet is never successful. The East was as rich in ideas as the West.

Just to give an example of what sort of history Muslim historians wrote in India, I may bring up Ziauddin Barani. He puts his ideas into the mouth of someone else, adopting the method of dialogue in the true Tacitus style. This would make the narrative more dramatic. He has a philosophy of his own, and makes history illustrate the point that men cannot escape divine judgement. He sees the past as the battleground between good and evil, and men are combatants who get what they deserve. He treats history as a branch of theology; which he thought would open the eyes of man to God, and of the Sultan to his obligations. To Barani, as to Croce, history was higher than science and philosophy, as it was inspired literature based upon reality and experience. It is the strongest foundation of truth, opens us to the wisdom of the past, guides humanity in the right direction, excites reason and judgement, comforts us in our misfortunes and depressions, provokes respect of the righteous and contempt for the wicked, and thus fulfils the functions of both science and philosophy. We may safely say that Barani did not lack in ideas.

Thus Muslim historiography of the Sultanate period was a new experiment in India. It removed a lacuna long existing in the intellectual life of the country. It used the medium of both prose and poetry. It had free access to sources, as the historians were well-placed to observe the events, well-paid to concentrate on writings, and well-versed to do the job. But they suffered from some disabilities as well. They adopted not the Arabic but the Persian style, highly embellished, didactic and subjective, ISNAD was discarded, mysticism gained the upper hand, subservience to the Sultan made them parasites, and edificatory narrative was the result.

More damaging was the effect in yet another field, which became more apparent only in the 19th and 20th centuries. It was the anxiety of these historians to depict the Sultans as the paragons of virtue, as pious and orthodox Muslims, as followers of SHARIAH, and as the propagators of Islam in India. This is far from true. Those sunk in wine and lost in abuses condemned in Islam could hardly be called 'paragons of virtue'. Their example, their policies, their way of life were more a hindrance to the spread of Islam, if Islam spread in India it might have been because of the positive effect of the Sufi movement and the negative aspect of the social structure in India. People would not love a fierce monarch like Alauddin, or an inconsistent one lkie Muhammad-bin-Thughluq, or an intolerant one like Firoz or a weakling like Kaiqubad. But the record of the Sufi saints from Nizamuddin Auliya to Shah Walli-ullah is a consistent record of liberalism, humanism, love, service and goodwill which attracted the masses, mostly the down-trodden, to accept the new faith.

The motives of the historians in praising the Sultans appear to be three. First, it was the political necessity of the time which compelled the Sultans to use the historians for gaining the support of the Muslim nobles and the masses, who being religious desired to be assured that the Sultan was doing everything sanctioned in the Quran. Secondly, it was military necessity, for most of the Islamic victories of the past had been won in the name of religion, and religion being a sensitive point, an opium, it was fully exploited by the military leaders, who presented themselves to the soldiers as the divinely ordained souls for the glory of God. Thirdly, it was a legal and constitutional necessity, for in Islamic jurisprudence the head of the State was supposed to be a good, true and pious Muslim, whose sole business was to carry out the injunctions of Islam. Whether he was really a good Muslim or not, the historians always made him appear in that light, like the character certificates we issue to the students.

In reality Islam had undergone a radical change in India. From the theocracy of Arabia it had passed on to the monarchy of Persia. The finer element of the Orthodox Caliphate had disappeared. Pure Islamic political theory ended in 661 A.D. itself when Muawiyah cheated Ali and sowed the seeds of personal monarchy, which took such deep roots that it was never uprooted to this day. But the successful political leaders camouflaged the masses under the cover that they were legally and constitutionally elected. This farce continued in India at every time of succession to the throne. A verdict on eligibility was required, and the historians did that job of assuring the Muslims that the Sultans had never foresaken the principles of Islam. In return the Sultans patronised the historians for declaring them as true Muslims, or else the ULEMA and the MUFTI would disqualify the ruler as unfit. Therefore, our medieval chronicles have to be studied with care. They are useful on information as to what happened but misleading on motives as to why it happened.

III

There is marked change in historical thought when we come to the Mughal period, a thorough transformation in treatment, in theme, in outlook and in technique. A new type of history dealing with the institutions of the people, the progress of civilisation and the growth of ideas emerged. We have now history straignt from horse's mouth, the emeperor's autobiographies. TUZUK-E-BABRI is a precious treasure, elegant in language, full and frank in judgement, encyclopaedic in information, and incisive on men and events. TUZUK-E-JEHANGIRI carries the confessions of the emperor, Jehangir, of his own follies and vices. A MULLAH like Abdul Qadir Badauni could pass scathing strictures on Akbar, and could go scot-free, something unheard of in medieval times. Abdul Fazl came out with his magnum-opus which was a "complete compendium of the political, religious, social, commercial and agricultural institutions of a nation", so valuable as to be unique in the annals of history. Historical material sprang up like mushroom. General histories, official records, biographies, autobiographies, documents, correspondence, SANADS, FARMANS, coins, inscriptions, travellers' accounts, gazetteers, literary works, all inundated the land.

The crown of the glory should go to Abdul Fazl for his AKBARNAMAH and to his patron, Akbar. Akbar saw in Abul Fazl to what height history could rise, and entrusted to him the monumental task of presenting a truthful account of the happenings in the Empire. Abul Fazal, a genius in the arena of scholarship, politics, diplomacy and warfare, was most suited to the task. When the main work was completed in 1598 it created a sensation and Abdul Fazl stood unrivalled. Apart from the four volumes on political history, the fifth one, AIN-E-AKBARI, dealing with the administrative machinery is most significant. It is a mine of information which gives us minutest details on the extent resources, conditions, population, industry, trade and commerce of the empire. Abul Fazl says that he compiled history with scrupulous regard for truth. He captured the mood of the liberal age, and depicted the manners of the people. He regarded history as 'a unique preal of science' and it gained extra polish at his hands. Akbar needed a PRO for his policies and no one was more suited for the job than Abul Fazl; and Akbar needed a medium for publicity, and no medium was more suited than history. Abdul Fazl believed in Akbar as saints belived in God, and hence his history is somewhat subjective. But this is only in respect of assessing Akbar, in all other respects it rises to great heights. If the highly ornate style of Abul Fazl and his adoration of Akbar are to be ignored, his works would rank as world classics in historical works. It is not like Firdausi's SHAHNAMA or Sadi's GULISTAN on the lips of those who know Persian, but a celebrated work of reference meant for serious study such as an authority on jurisprudence or an encyclopaedia, consulted when required, but not read for pleasure.

The idealism of Akbar was shattered in the pages of Badauni, a reactionary and a revivalist, but from the stand-point of ideas, a spokesman of a different view. He did not like Akbar's liberalism, ecleticism, religious policy, Rajput policy, patronage to all, DIN-E-ILAHI and aversion to orthodox formalities, and hence he indulged in polemics. It was the personal rivalry with Abul Fazl, who had risen high. But Badauni stands for full, free and frank expression of his ideas which had not reconciled with the spirit of the age.

Despite so much progress we cannot say that the Mughal period anticipated the historical thought that followed in Europe in the post-Renaissance and Reformation period. Most of the Mughal historians had collected the material painstakingly, utilised it intelligently and expressed their ideas effectively, but did not interpret the data meaningfully. They had no idea of the conditions and causes that produced the events; or any idea that everything that succeeds is the outcome of what precedes; or any idea that history is a process in which something fresh is created at every moment, or any idea that action always produces reaction, and that the two together will germinate the seeds of history. Although Ibn Khaldun had alerted our mind to the science of history and culture, no Muslim historian in India bothered to think on those lines. Didactic history intended to teach mankind how to lead a virtuous life was still persisting. Yet let us not be harsh on the Mughals. If we judge them by the historical thought of 18th and 19th century Europe, we would be committing the error of judging an age out of focus. The milieu of the Mughals was not supposed to produce a Voltaire, a Comte or a Marx. What is interesting is that even the princesses of the HAREM like Gulbadan Begum, wrote history which is invaluable for insights into the psychology of higherups in the empire. ☐

[To be Concluded]

Third Regional Workshop on Agrl. Econ. Research

The Indian Society of Agricultural Economics, organised a workshop on Agricultural Economics Research Methodology in the Department of Agricultural Economics of the Institute of Agricultural Sciences, Banaras Hindu University, Varanasi. The northern regional workshop was the third in the series of such workshops held on regional basis. The main objective of the workshop was to upgrade the research competence of the researchers and teachers in Agricultural Economics and to improve their technical competence for teaching.

The varied group of participants in the workshop included faculty staff from the Agricultural colleges and Universities located in the Northern region of the country. There were 25 participants in the workshop, in addition to the five, resource persons, namely, Dr. N. Rath, former Director, Gokhale Institute of Economics and Politics, Poona, Dr. V.M. Rao, Institute of Economic and Social Change, Bangalore, Dr. S.K. Ray and Dr. K. Subba Rao, Institute of Economic Growth, Delhi, and Dr. V.K. Pandey, Head, Deptt. of Agricultural Economics, Pantnagar University. Four broad areas which formed the focal point of discussion were:

1. Application of Statistical Methods to Study Income Distribution, Price Analysis, Marketing Margins, Consumption Patterns, Yield Gaps in Agriculture, Agricultural Wages, Agricultural Taxation and Related Topics.
2. Correct Use of Production Function/Regression Analyses; Linear Programming/Mathematical Programming Techniques.
3. Measuring Growth Rates in Agriculture.
4. Price Determination, Procurement Price, Public Distribution System, Price Controls and Prices and Production.

Each session briefly covered the methodology adopted for research in that area and sources of data and the limitations of available data base. The main thrust of the workshop has been to explain ways of avoiding some of the common weaknesses observed in research work. The deliberations in the workshop aroused tremendous response from the participants in identifying the weakness and omissions often seen in the research efforts. It was observed that the research problems were not conceptualised properly, the analytical tools and techniques were used in a stereotype manner without making appropriate modifications keeping in view the problems involved in the particular type of analysis and the availability of data base. In many cases the variables were not identified accurately. The ways for mitigating these weaknesses so as to make the research endeavours cost-effective as well as responsive to the needs of the farming community and the associated institutions were discussed in detail. ☐

Quest for Friendship & Cooperation

Hon'ble Shri Narayan Datt Tiwari, Union Minister for External Affairs delivered the Convocation Address at the annual convocation of the Birla Institute of Technology, Mesra, Ranchi on 29 December 1986. In the course of his address, Shri Tiwari delineated the basic tenets of our foreign policy, the problems and challenges we are faced with and the directions of our contemporary foreign policy. Excerpts:

We enter the last years of the 20th century not merely with a measure of satisfaction at the remarkable industrial, scientific and technological progress that we have made since the attainment of Independence, but also with justifiable confidence and pride in the ability and ingenuity of our younger generation to keep what the late Shri Jawaharlal Nehru described as India's "Tryst with Destiny."

When India attained Independence four decades ago after a unique struggle led by Mahatma Gandhi, our leaders recognised that our Independence would be incomplete unless the fruits of economic progress became available to the common man and the process of economic growth went hand-in-hand with the promotion of social justice. It was in keeping with these imperatives that we undertook a massive programme for agricultural and industrial development in a planned manner.

It is a measure of tribute to the foresight of the late Shri Jawaharlal Nehru that his vision of a socialist, secular and self-reliant India playing a positive role in the comity of nations, has been fulfilled in a substantial measure. Barely four decades after attainment of Independence, India today is self-sufficient in food, has about the third largest cadre of trained and technical manpower and is counted amongst the ranking industrialising nations of the world. Much, however, still remains to be done if we are to move ahead on the path of prosperity and progress in the years ahead. It is in this quest for building the India of the dreams of our national leaders like Mahatma Gandhi, Jawaharlal Nehru and Smt. Indira Gandhi that engineers and technologists like you will play a vital role.

If the Industrial Revolution could have been said to mould the lives and shape the destiny of people in the 19th century, we are today living in a world where new technologies are revolutionising not only production processes but also our ways of life. While these technologies, if appropriately utilised, could bring in immense benefit to mankind, they could, at the same time, also lead to the destruction of human civilisation if misutilised in a nuclear conflict.

It is in the light of these developments that I would like to avail of this opportunity to share some thoughts with you about the broad guidelines of our Foreign Policy, the problems and challenges which we are faced with and the directions of our contemporary Foreign Policy so that you could better understand the challenges we face in the years ahead.

Given the unique nature of India's struggle for Independence, it was only natural that independent India would adopt a Foreign Policy dedicated to the quest for international peace and for the promotion of co-operation and understanding with all nations. The architect of India's post-Independence Foreign Policy, Shri Jawaharlal Nehru, firmly believed that India should pursue an independent policy—a policy of Non-Alignment, which reflected the cherished ideals of our freedom struggle. It was our conviction that our own independence would have little meaning if the large majority of Afro-

Shri N.D. Tiwari, Union Minister of External Affairs, delivering the Convocation Address.

Asian countries still remained under colonial domination. It was, therefore, only appropriate that India played a leading role in championing the cause for independence of countries under the colonial yoke.

It was evident to India's leaders that if we are to play a truly independent role in world affairs, such a policy could draw sustenance only by stregthening the roots of democracy in India and by a sustained quest for economic self-reliance. It is a tribute to the success of this quest for self-reliance that with the passage of time, the overwhelming proportion of resources required for development is from our own savings. Assistance from abroad constitutes a very small portion of our net development effort. The success of our efforts to build a united, strong and self-reliant India, would depend much on the commitment, dedication and hard work of those like you who are graduating from this eminent institution. It is you who would build the India of tomorrow, the India of Mahatma Gandhi's, Rabindranath Tagore's and Vivekanand's dreams.

We are today living in a world haunted by the spectre of nuclear conflict. It is awareness of the danger of nuclear war that prompted the late Prime Minister, Shrimati Indira Gandhi to embark on the now-famous Six-Nations Disarmament Initiative, with countries drawn from the five continents—India, Tanzania, Greece, Sweden, Mexico and Argentina—in order to bring to bear the conscience of world public opinion against the nuclear arms race. As the Prime Minister, Shri Rajiv Gandhi declared at the funeral of Olof Palme on March 15, 1986, "All nations—not just those who have armed themselves with these horrendous weapons, but all of us—have the duty to urge that weapons of mass destruction be outlawed. A comprehensive, verifiable nuclear test ban will indict the spread of nuclear arms into new dimensions and set in train a process of nuclear arms control which will, hopefully, lead to nuclear disarmament." It is gratifying that the Six-Nation Disarmament Initiative is today recognised arcoss the world as a major effort to halt and, indeed, reverse the nuclear arms race

Birla Institute of Technology, Mesra, Ranchi which threatens the very survival of humankind.

I had mentioned that one of the basic tenets of India's foreign policy has been the quest for friendship and co-operation with all nations of the world. In the years since Independence, the consistent support which we have accorded to the struggle against colonialism and apartheid in South Africa, for the inalienable rights of the Palestinians, and our principled and constructive position on international political and economic issues have won us the friendship of countries in all parts of the world—friendship based on trust and mutual respect. It is because of our principled and constructive policies that a wide-ranging consensus emerged, urging India to assume the Chairmanship of the Non-Aligned Movement in 1983. In the three years that India was Chairman of the Non-Aligned Movement—first under the leadership of late Smt. Indira Gandhi and, thereafter, under the leadership of the Prime Minister, Shri Rajiv Gandhi, we worked tirelessly to strengthen the unity and solidarity of the Movement and to steer it on the path envisaged by its great Founding Fathers like Nehru, Nasser and Tito. Our approach to issues confronting the Movement was internationally appreciated as one laying stress on bridge-building among nations and our role as Chairman universally commended.

I had mentioned earlier that it was the basic aim of our Foreign Policy to strengthen our friendship with nations across the globe. In keeping with this approach, we have made consistent efforts to improve our relations with neighbouring countries. We are gratified that the efforts which we have made to improve our relations with most of our neighbours have met with a large degree of success. While it is only natural that problems should exist between neighbours, we are convinced that these can be resolved by mutual goodwill and understanding. We have also sought to improve our relations with Pakistan. It is our hope that Pakistan, in turn, will abide by the letter and spirit of the historic Simla Agreement which places emphasis on adherence to the principles of non-interference in internal affairs and in the peaceful and bilateral settlement of disputes.

I had referred earlier to the revolutionary changes wnich new technologies are bringing about in our ways of life. The challenges you would be faced with as you put into practice what you have learnt here, will arise primarily from your need to keep constantly abreast with scientific and technological developments across the world. In facing the challenges of adapting and utilising these new technologies for the benefit of our people, we will have to evolve new approaches to existing management structures and techniques. While there is naturally an inclination to seek security behind employment in the Government, such employment alone would perhaps not give you the sense of satisfaction which you would derive from your own efforts at innovation, adaptation and development of new technologies and management practices for the benefit of our people.

There seems to be a popular misconception about our quest for the development of high technology in our country. We beleive that new technologies like biotechnology and genetic-engineering must be utilised for increased productivity and for the benefit of the common man. What we are seeking today in different spheres of our national life is technology and managerial skills appropriate to our needs.

We are today passing through a momentous period in the national life of our country. The resilience of our democratic institutions is being tested increasingly by challenges which are unfortunately sometimes posed by a recourse to violence. The external security environment is also causing concern with increasing great power rivalries and the induction of sophisticated arms in our neighbourhood. We can, however, look to the future with optimism and confidence because we firmly believe that our younger generation, which emerges from institutions like the Birla Institute of Technology, where youth from the far corners of our vast and diverse country get together, have the necessary faith, dedication and commitment to the country's freedom, progress and well-being,. transcending narrow considerations of caste, religion and language. ☐

BIT-STEP

A significant achievement of the Institute is the development of a highly successful techno-entrepreneurship programme, now called 'BIT-STEP' launched in collaboration with the Government of Bihar, the Central Government, the Industrial Development Bank of India and the Birla Institute of Scientific Research. Under this programme senior students are involved for developing specific equipment or components currently being imported. The students are assisted and encouraged to develop indigenous substitutes of these imported items. The know-how has led to the establishment of a number of useful and viable manufacturing units owned and run by young techno-entrepreneurs.

The 'BIT-STEP' concept has been acclaimed widely and is being promoted by the Government of India as a model for launching similar STEP projects in other parts of the country in collaboration with established Engineering institutions.

NATIONAL YOUTH WEEK

"Arise ! Awake! Stop not till the goal is reached."

—Swami Vivekananda

Association of Indian Universities (AIU) and the Department of Youth Affairs and Sports, Govt. of India, jointly organised a Cultural Evening on 17 January, 1987 to mark the National Youth Week. 150 student artists drawn from 15 universities participated in the colourful programme held at the spacious auditorium of Azad Bhawan, the headquarters of the Indian Council for Cultural Relations (ICCR).

The programme comprised folk dances, group songs, classical dances, and light, vocal and instrumental music. It commenced on a softer note with a melodious bhajan rendered by Suchitra Barve of S.N.D.T. Women's University, Bombay. This was followed by Bihu folk dance of Assam. The dancers from Gauhati University punctuated their body movements to the rhythm of dhol (drum), pepa (horn pipe), taka (bamboo instrument) and gagana (jessherp). This folk dance is performed by boys and girls who may choose their life partners from amongst those of participating in the dance. Marathi folk dance presented by the Marathwada University dramatized native tradition of Maharashtra celebrating Dassehra and Navaratri festivals.

S.N.D.T. Women's University, Bombay, presented a beautiful group song with the theme—"Let there be a dark night or bright morning, dustful or thornful road, we intend ourselves to be the path and burning flame."

Young damsels of Rajasthan University staged a gorgeous 'Ghoomar' dance that finds its genesis in royal Rajputana families where young princesses on certain festivals like "Teej' and 'Gangor' used to share their likes and dislikes and secret wishes with each other through this dance form. This dance is marked by soft body movements, colourful dresses and the smiling faces behind the veils covering the faces of the dancers. 'Holi' was revived with riotous colours flashed by the youthful dancers of Haryana Agricultural University.

Bharathidasan University presented a mellifluous group song urging the youth to take the world to high level of prosperity by their unity, dedication and commitment. Bharathidasan University students also presented the colourful 'Kargam' folk dance. Each karaga dancer carried a brass pot on his head decked with flowers in conical shape. To the accompaniment of 'Thavil' and 'Nathaswaram' the Karaga dancers executed complicated movements, balancing the karagam on the head. 'Badhai' folk dance by Dr. H.S. Gour University, Sagar followed the Karagam dance. As its title denotes, the Badhai dancers congratulate each other on various happy occasions in the Bundelkhand region. The group song by Rajasthan University depicted the hardships faced by the sailors and exhorted them to face the same with a smile.

A Haryanvi folk dance was presented by M.D. University, Rohtak. The folk dancers portrayed cheerful emotions of young brides while describing their bridal dress, ornaments and styles of make-up to their mothers and sisters-in law, and friends. 'Chowlia' folk dance was presented by Bombay University. This dance of Kumaon hills of Uttar Pradesh is performed on the occassion of Vijaydashmi. The female participants bang the thalis and invite the people of the village to join them in the festivities, while the male participants, with swords in their hands, cut the tree of shamini and wish the people all the best. 'Kabui' folk dance was presented by Banasthali Vidyapith, on the beating of a drum called 'Harao Pung' and blowing of a horn called 'Cochai'. The dance relates to a Naga Tribe inhabiting Tamenglong Sub-division of Manipur state.

Participants from Annamalai University rendered two group songs. While the first song called upon the youth to unite and raise the country from the abyss of racial differences and religious conflicts, the second song portrayed the feelings of joy and hope. Students from Dayalbagh Educational Institute, Agra rendered a group song in salutation to the motherland—the land of our birth, ancestors, music, sacrifice and destiny.

In instrumental music, a 'Jugalbandi' on violin was presented by Santosh Nahar, Patna University in Hindustani style and Kalaiarasan, Annamalai University in Carnatic style. Nikhil Bidwalkar of Jodhpur University, gave a performance on 'Santoor', an instrument from Kashmir.

Classical dances followed Instrumental Music. Madhukar Anand of Patna University spell-bound the audience with his Kathak dance. Rangasree of Bangalore University, presented 'Bharathanatyam' and rendered Purandaradasa's 'Devaranama' and 'Tillana'. Light vocal performance by S. Saraswathi of Bharathidasan University marked the finale of the cultural programme.

It was indeed a rich tribute by university artists to Swami Vivekananda who was born on 12 January 1863 and in whose memory this programme was organised as a part of National Youth Week. □

Bihu Folk Dance

Bharathanatyam

ASSOCIATION OF INDIAN
DEPARTMENT OF YOUTH AFF

Group Song

Karaga

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Marathi Folk Dance

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Kathak Dance

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DEPARTMENT OF
COLOURFUL CUL

Jugal Bandi on Violin

Central Board of Secondary Education

EMKA House, 23/23-B, Ansari Road, Daryaganj
New Delhi-110 002

ALL INDIA COMPETITIVE MEDICAL/DENTAL ENTRANCE EXAMINATIONS, 1987

As per the directives of the Hon'ble Supreme Court of India, the Central Board of Secondary Education will be conducting All India Pre-Medical/Pre-Dental Entrance Examinations for admission to 15% of the total intake capacity of Medical/Dental Colleges in different States except the States of Andhra Pradesh and Jammu and Kashmir.

Date of Examination : The examinations will be held on Sunday, the 3rd May, 1987, in different centres as listed in the Bulletin of Information.

Eligibility

(a) Only Indian nationals are eligible to appear in the examinations.

(b) Candidates should have attained 17 years of age at the time of admission or will complete the age on or before 31st December of the year of his admissions to the 1st M.B.B.S. Course.

(c) Candidates should be medically fit.

(d) Candidates from the States of Andhra Pradesh and Jammu and Kashmir are not eligible to appear in the examinations, as per the directives of the Hon'ble Supreme Court.

(e) **Educational Qualification :** The candidate should have passed :

(i) The Higher Secondary Examination or the Indian School Certificate Examination which is equivalent to 10+2 Higher Secondary Examination after a period of 12 years study, the last two years of study comprising Physics, Chemistry and Biology with English at a level not less than the core course for English as prescribed by the National Council for Educational Research and Training after the introduction of the 10+2+3 years educational structure as recommended by the National Committee on Education.

OR

(ii) The Intermediate/pre-degree examination in Science of an Indian University/Board or other recognised examining body with Physics, Chemistry and Biology which shall include a Practical Test in these subjects;

(iii) The pre-professional pre-medical examination with Physics, Chemistry and Biology, after passing either the higher secondary school examination or the pre-university or an equivalent examination. The pre-professional pre-medical examination shall include a practical test in these subjects.

OR

(iv) The first year of the three years' degree course of a recognised university with Physics, Chemistry and Biology including a practical test in these subjects provided the examination is a 'University Examination';

OR

(v) B.Sc. examination of an Indian University. Provided that he has passed the B.Sc. examination with not less than two of the following subjects Physics, Chemistry, Biology (Botany, Zoology) and further that he has passed the earlier qualifying examination with Physics, Chemistry, Biology and English;

OR

(vi) Any other examination which, in scope and standard is found to be equivalent to the intermediate Science examination of an Indian University/Board, taking Physics, Chemistry and Biology including a practical test in each of these subjects and English.

(vii) To be eligible for competitive entrance examination, candidate must have passed any of the qualifying examinations as enumerated above.

Provided also that a candidate for admission to the Medical Course must have obtained not less than 50% of the total marks in English and Physics, Chemistry and Biology taken together at the qualifying examination (or at the Higher examination).

Provided further that in respect of candidates belonging to Scheduled Castes/Scheduled Tribes the minimum marks required for admission shall be 40% in lieu of 50% for general candidates.

Provided further that the students of Indian Nationality educated abroad seeking admission into medical colleges, in India, must have passed in the subjects of Physics, Chemistry, Biology and English upto the 12th standard level with 50% marks.

How to Apply

Application forms and Bulletin of Information can be obtained from the office of the Controller of Examinations, Central Board of Secondary Education, Emka House, 23/23-B, Ansari Road, Daryaganj, New Delhi - 110 002 and also from the Regional Offices at the below mentioned addresses:

Regional Officer,
CENTRAL BOARD OF SECONDARY EDUCATION,
26 South Mada Street,
Srinagar Colony,
Saidapet,
Madras - 600 015.

Regional Officer,
CENTRAL BOARD OF SECONDARY EDUCATION,
R.G. Barua Road,
Bye Lane No. 1,
Near Disneyland School,
Guwahati - 781 003,
Assam.

Request for application forms should be accompanied by a Demand Draft for Rs. 10/- (Rupees ten only) from any Nationalised Bank and drawn in favour of the Secretary, Central Board of Secondary Education, New Delhi-110 002 and accompanied by a self-addressed stamped envelope for Rs. 3/- (Rupees three only). (The envelope should be of 26 cm x 20 cm size).

Application forms can also be obtained against payment of cash from the above offices from **January 30, 1987.**

Last date for receipt of application forms

Application forms complete in all respects and accompanied by necessary fee of Rs. 100/- (Rupees one hundred only) (Rs. 25/- in case of Scheduled Caste/Scheduled Tribe candidates) should be sent to the CONTROLLER OF EXAMINATIONS, CENTRAL BOARD OF SECONDARY EDUCATION, EMKA HOUSE, 23/23-B, ANSARI ROAD, DARYAGANJ, NEW DELHI - 110 002 before **14th March, 1987.** No application forms will be entertained by the Board, for whatever reason, after **14th March, 1987.**

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
February 9-12, 1987	Second Conference on Economic Theory and Related Mathematical Methods	To provide a forum to discuss and share research ideas in economic theory	Planning Unit, Indian Statistical Institute, Delhi Centre	Mr. P. Chander, Indian Statistical Institute, Delhi Centre, 7, S.J.S. Sansanwal Marg, New Delhi - 110016
February 16-19, 1987	National Seminar on Crystal Growth and Characterisation of Advanced Materials for Solid State Applications	Topics to be covered are: Theoretical and Experimental Aspects of Crystal Growth; Heat and Mass Transport; Industrial Crystallisation; Rapid Solidification and Casting; Biological and Molecular Crystals; and Special Crystals—New Techniques and Instrumentation.	Crystal Growth Centre, Anna University, Madras.	Prof P. Ramasamy Convener, Third National Seminar on Crystal Growth, Crystal Growth Centre, Anna University, Madras.
February 20-22, 1987	International Conference on Role of Universities in the Strategies for Health for All by 2000 A.D.	To focus on the role of the Universities in achieving Health for All (HFA) by 2000 A.D.	Mangalore University in collaboration with Kasturba Medical College, Manipal and International Medical Sciences Academy, New Delhi.	Dr. A Krishna Rao Co-ordinator, Conference on Role of Universities for HFA by 2000 A.D., Department of Medical Education Manipal-576119.
February 23-27, 1987	Short term Course on Application of Digital M.S.S. and Thematic Mapper Data for Quantification of Agricultural and Forest Resources.	To acquaint the participants with the techniques of Image Processing and Digital Analysis of Landsat Data with special emphasis on the application of techniques to the fields of Water Resources, Pedology, Forestry, Earth Sciences and Mineral Resources.	Centre of Studies in Resources Engg., IIT, Bombay.	Dr. T.V. Pavate, Chief Project Engineer, Training Extn. & Project Cell, R.S.D. No. VI, C.S.R.E., Indian Institute of Technology, Powai, Bombay.
February 25-28, 1987	Workshop on Structures for Nuclear Power Reactor Technology	To provide a forum to take stock of the present know-how in various civil and structural engg. aspects of nuclear power plant construction and to project the future needs for Research and Development in this area.	Department of Civil Engg., IIT, Madras.	The Coordinator, SNUPORT-REDECC 1987, Structural Engg. Laboratory, Department of Civil Engg., Indian Institute of Technology, Madras.
March 2-5, 1987	Seminar on Recent Advances in Concrete Construction	To provide an opportunity for exchange of experience amongst practising engineers, consultants, research workers and academics and to guide the research and development activities in the area of concrete construction.	Department of Civil Engg., IIT, Madras.	The Coordinator, SNUPORT-REDECC 1987, Structural Engg. Laboratory, Department of Civil Engg., Indian Institute of Technology, Madras.

Teaching of English in India

A Socio-Functional Approach

Dr. S.K. Verma, Director, Central Institute of English and Foreign Languages, delivered the keynote address at the All India UGC Summer Institute in English organised by Madurai Kamaraj University, Madurai from December 26, 1986 to January 13, 1987. An abstract of the address is reproduced for wider audience.

Languages in contact in a multilingual setting form a system network. Each language in this network represents a bundle of features and has a contrastive value based on the role(s) played and functions performed by it relative to the roles played and functioons performed by other languages. The emphasis in the National Policy on Education (1986) is on the adoption of modern Indian languages as the media of instruction at the University level. This assignent of a new value to the regional languages, that is, making them function as the media of education upto the highest levels, is bound to bring in a change in the system network. It will mean assigning a new set of functional values to English and the other Indian languages in contact.

The multilingual and pluricultural nature of the society in India makes it clear that we need more than one language for 'national cohesion', 'cultural integration' and 'social and areal mobility'. Different languages have different roles to play. The mother tongue has a role to play; the regional language has a role to play; English has a role to play; Hindi has a role to play; foreign and classical languages have roles to play. They are complementary. They can and should coexist peacefully.

English has been used in our multilingual setting in a variety of roles at different levels; as the associate official language of the country, the associate medium of higher education, the associate intranational link language, as the international link language, as the window on the world, as the library language, as the language of upward socio-economic mobility.

It is important that we should identify the English requirements of various groups of learners precisely, and try to provide for each group the pattern of courses which will be relevant to the needs of learners. This is important because not all students in our country today will need the same kind and quantum of English. We must ensure that English functions as a 'service-language' for the various categories of learners. It may therefore be useful to produce a variety of need-based, topic-oriented, short courses designed to meet the demands of a variety of 'consumers of English in India.

National Entrance Exam for Admission to Medical Colleges

The Medical Education Review Committee set up by the Government of India is reported to have recommended that a National Entrance Examination should be held for admission to the MBBS course in all the medical colleges in the country. According to Minister of State for Health and Family Welfare, Ms Saroj Khaparde, the Government has agreed, in principle, with the recommendation of the Committee. She said that the committee had also recommended to the Supreme Court which was seized of the matter that 15 per cent seats in Under-Graduate courses and 25 per cent in Post-Graduate courses in all the Medical colleges should be filled up through open competition.

The Supreme Court has accepted this recommendation and has accordingly directed that the Central Board of Secondary Education and the All India Institute of Medical Sciences should conduct Entrance Examination for filling up 15 per cent of Under-Graduate seats and 25 per cent Post-Graduate seats respectively in all the Medical/Dental Colleges. The Court has further directed that students from the States of Andhra Pradesh and Jammu & Kashmir shall not be entitled to appear in the All India Entrance Examination unless the States of Andhra Pradesh and Jammu & Kashmir agree to make available not less than 15 per cent of the total number of seats for the MBBS/BDS courses and not less than 25 per cent seats for the post-graduate courses in their respective Medical/Dental Colleges for admission on the basis of All India Entrance Examination.

National Symposium on Quantum Electronics

The IV National Symposium on Quantum Electronics organised by the Department of Atomic Energy, Govt. of India and hosted by the Cochin University of Science and Technology (CUSAT) was held during 29 Dec. 1986-1 Jan. 1987.

Inaugurating the symposium, the then Vice-Chancellor of CUSAT, Dr. K. Gopalan said that even quarter century after the discovery of the laser, its science and technology was still to make a dent in India.

While internationally the laser revolution had a sweeping impact—its technology was used to drill holes in baby milk bottle nipples as well as to conduct Star Wars—only a few institutions like Bhabha Atomic Research Centre (BARC), and a handful of Indian University departments were actively working in the field.

Nearly 150-top scientists from all over the country as well as a few from abroad took part in the symposium which was held in South India for the first time. Ninety five research papers were presented at the symposium. The topics for discussion included: laser physics, non-linear optics, quantum optics, laser spectroscopy, laser photochemistry, holography, laser plasma interaction, laser engineering and technology, laser applications in medicine and industry and optical communications.

The symposium also featured 10 invited talks by leading experts in the field who described the state of art in various areas of laser technology. Renowned physicist Prof. E.C.G. Sudarshan delivered a popular lecture which was the highlight of the first day's proceedings. A special feature of the symposium was the opportunity provided to doctoral students working in the field to describe their research efforts.

Rural Development University

Andhra Pradesh is considering a proposal for setting up a University of Rural Development in the State. This was disclosed by the State Chief Minister, Mr. N.T. Rama Rao while inaugurating an International Conference on Integrated Rural Development in Hyderabad recently. He said that he had already received a report recommending such a university from Prof. M.R. Appa Rao, former Vice-Chancellor of Andhra University.

5-Year Law Course

The Osmania University is reported to have decided to introduce five-year integrated law degree course with effect from the next academic session. This is as per the directives of the Bar Council of India to implement its decision latest by 1987-88. The Andhra and Sri Venkateswara Universities have already introduced the 5-year course in private law colleges.

Sanskrit Varsity for Kerala

A Sanskrit University is proposed to be established in Kerala. To be named after Sankara, the Sree Sankaracharya Sanskrit University is expected to be located at Kalady in Ernakulam District. It will be a teaching-cum-residential University having jurisdiction all over the State and will aim at accelerating and developing higher education and research in Sanskrit.

Fellowship Rates Raised

The Haryana Agricultural University is reported to have increased the rates of fellowships for M.sc students from Rs. 400 to Rs. 700/- and for Ph.D. students from Rs. 600/- to Rs. 850/- with effect from 1st January 1987.

News from Agril. Varsities

New Crop Varieties

The G.B. Pant University of Agriculture and Technology has developed a special wheat variety—Pant wheat 1109 for cultivation exclusively in the entire Northern hills of the country.

The variety is high-yielding with high degree resistance to yellow and brown rusts and powdery mildew, which are the major crop diseases in the hills. It is suitable both for irrigated and rainfed conditions.

Trials conducted for three years in the U.P., Himachal and Jammu and Kashmir have revealed that this variety is superior in all respects to the existing recommended varieties—HS 86, HB 208, VL 421 and Sonalika. It yields 55 to 60 quintals of produce per hectare under irrigated and good management conditions and 25 to 30 quintals under rainfed and low fertility conditions. It has been recommended to be sown from second fortnight of October till mid November and matures in 145 days.

The University has also released two super disease resistant early-maturing high-yielding varieties of Soybean and field Pea named KP-472 and P-5, respectively.

The new soybean variety, early maturing (98 days), is highly resistant to yellow mosaic disease in comparison to all other existing varieties. It is highly resistant to bacterial pustules, leaf spot and charcoal rot. Against girdle beetle, PK-472 has been found to be least susceptible. Against defoliators it is comparable to Bragg but superior to "Gaurav". Having good field emergence the grains of this variety contain 19.91 per cent of oil content and 40.84 per cent of protein.

The new pea variety P-5 is suitable for cultivation in the entire North-Western plains of the country comprising Uttar Pradesh, Punjab, Haryana, Delhi and Rajasthan. The new variety yields considerable good produce than that of T-163, "Rachna" and DMR-11 identified earlier for the plains zone. On an average it yields 2134 kg of grain produce per hectare. A tall growing medium maturing variety with round and medium sized white grains, it is highly resistant to serious diseases like powdery mildew and rust.

Trials have shown that the soybean variety could outyield all the qualifying varieties substantially where its percentage yield increase over "Gaurav" stands 31.75 per cent on zonal mean basis. On over all mean yield performance for over four years, PK-472 has outyielded all the qualifying varieties, increased margin being 4.00 per cent over Bragg and 6.62 per cent over Gaurav. In agronomic trials conducted over two years on variety cum date of planting, PK-472 outyielded all the varieties, including checks. The PK-472 matures a few days earlier than Bragg and other qualifying varieties. Besides it has better storability and good field emergence.

News from UGC

500 Autonomous Colleges by 1990

The University Grants Commission has decided to confer autonomous status to about 500 colleges in the country by the end of the Seventh Plan by 1990 i.e. 50 in the current financial year, 150 in the next year, 200 in 1988-89 and 100 in 1989-90. It has drawn up guidelines and invited proposals from the universities for such autonomous colleges laying down, inter-alia, basic objectives, criteria for identification for such colleges, nature of affiliation and their relationship with the universities, award of degrees, their governance, pattern of financial assistance and procedure for evaluation and monitoring of their working.

The setting up of such autonomous colleges, aims at achieving higher standards of teaching and research and greater creativity by providing opportunity to the teachers and the students to make innovations and to utilise their creative talent in order to quickly respond to the social needs. These autonomous colleges will take up the responsibility of academic programmes, content and quality of teaching by determining their own courses of study and syllabi and prescribing rules for admission and assessment of the students. Promotion of national integration will be an important feature of the autonomous colleges through their academic programmes and other activities.

For the identification of the colleges for grant of autonomous status, their academic reputation, previous performance in the university examinations and their academic and cultural activities, physical facilities i.e. library, accommodation and equipment, institutional management and financial resources etc. will be taken into consideration.

The parent universities, to which such colleges are affiliated, will help them develop their academic programmes, improve the faculty and provide necessary guidance. These colleges will, however, have autonomy to draw upon the expertise of the university departments and other institutions in framing curricula and devising the methods of evaluation, conduct of examination and selection of teachers. The autonomous colleges will also have the freedom to enter into collaborative teaching research or extension education programmes with other colleges and institutions in higher learning.

The autonomous status to a college will be conferred by its parent university to which it is affiliated, with the concurrence of concerned State Government and the U.G.C. For this purpose, the acts and the statutes of some of the universities may have to be amended. The status of autonomy to a college may be granted initially for a period of five years and a review may be undertaken after three years by the university with the help of a committee duly constituted. In case of evidence of declining standards, it would be open to the university, after careful scrutiny, to revoke the autonomous status. For effective implementation of the scheme of autonomous colleges, each university will constitute a Standing Committee including representatives of the UGC and the concerned State Government.

For governance, each autonomous college will have three committees, namely (1) The Governing Body/ Board of Management, (2) Academic Council, and (3) Board of Studies.

The U.G.C. will provide financial assistance to autonomous colleges for their additional and special needs on yearly basis as a block grant. The additional assistance will enable the colleges to meet the expenditure on staff including visiting faculty, administrative, library and laboratory and on redesigning of courses, development of teaching/learning material, organisation of workshops and seminars, orientation of teachers, faculty exchange, participation of teachers in conferences etc., examination reforms and development of audio-visual aids, etc.

The ceiling of normal financial assistance per annum will be Rs. 4 lakhs for Art/Science/Commerce undergraduate colleges, Rs. 5 lakhs for Arts, Science and Commerce Postgraduate colleges and Rs. 7 lakhs for colleges (having both undergraduate and postgraduate levels).

Each autonomous college will have appropriate mechanism to evaluate its academic performance and improvement in standard. It will also evolve suitable norms for its accountability both internal and external.

Hari Om Ashram Trust Awards

The University Grants Commission (UGC), has selected the following scientists for the Hari Om Ashram Trust Awards for the years 1983 and 1984 for their outstanding scientific work and important contribution to human knowledge. These awards which are of the value of Rs. 10,000/- each are given out of the endowment created with the funds received from Hari Om Ashram Trust, Nadiad (Gujarat).

The Sir C.V. Raman Award for Research in Physical Sciences : Prof. R. Vijayaraghavan, Tata Institute of Fundamental Research, Bombay (1983); Prof. S. Biswas, Tata Institute of Fundamental Research, Bombay (1984).

The Homi J. Bhabha Award for Research in Applied Sciences : Dr. D. Srinivasan, Indian Institute of Technology, Madras (1983); Prof. V. Rajaraman, Indian Institute of Science, Bangalore (1984).

The Meghnad Saha Award for Research in Theoretical Sciences : Prof. C.K. Majumdar, Indian Association for the Cultivation of Science, Jadavpur, Calcutta (1983); Prof. G. Rajasekaran, Institute of Mathematical Sciences, Madras (1984).

The Jagdish Chandra Bose Award for Research in Life Sciences: Prof. D.P. Burma, Banaras Hindu University, Varanasi (1983); Prof. A.S. Mukherjee, Calcutta University, Calcutta (1984).

Award in the field of 'Inter-action between Science and Society' : Prof. P.V. Sukhatme, Maharashtra Association for the Cultivation of Science, Pune (1983); Prof. E.V. Chitnis, Adviser, Space Applications Centre, Ahmedabad (1984).

Sri Sathya Sai Institute of Higher Learning

Vidya Giri, Prasanthinilayam 515 134 (A.P.)

ADMISSION NOTICE

Applications for admission to B.A., B.Sc., B. Com., M.A., M.Sc., M. Com., M.B.A. and B.Ed. courses commencing from June 1987, will be available from the Office of the Registrar, between **15-2-1987** and **25-3-1987**. Candidates applying for B.A., B.Sc., B. Com. courses should have completed before **May 1987**, 12 years of schooling with minimum 50% marks. Candidates applying for Postgraduate courses including M.B.A. and B.Ed. should have secured minimum 50 per cent marks in the subject and General English and also completed before May 1987, 10+2+3 pattern or considered equivalent by the Institute. Interested candidates may apply requesting for Information Handbook and Application Forms alongwith I.P.O. or Bank Draft for Rs. 35/- in case of candidates for M.B.A. and B.Ed. and Rs. 25/- for all other courses, drawn in favour of "SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING, PRASANTHINILAYAM". All details regarding courses, dates of admission tests and interview, etc. will be available in the Handbook.

REGISTRAR

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Psychology

1. Dube, Rekha. *The effect of mental set personal space and spatial density on anxiety and depressive state.* HS Gour. Dr. B.B. Asthana.

2. Gupta, Usha. *Diagnotic discrimination.* BHU. Dr. R.R. Tripathi.

3. Jayalakshmi. *Personality characteristics of children of working and non-working mothers.* BHU. Dr. (Mrs.) R. Verma.

4. Khanna, Poonam. *Effects of crowding and density in home environment on psychological stress of adolescents.* BHU. Dr. Meenakshi Arora.

5. Maitra, Samya. *An experimental study of the judgement of facial expression of emotions in field dependent and field independent personality.* BHU. Prof. M.S.L. Saxena.

6. Mukherjee, Madhabi Lata. *Cognitive functions among blind children.* BHU. Dr. R.C. Mishra.

7. Saraf, Madhvi. *Need-affiliation, role relationship and socio-economic status as related to territoriality among adolescents.* HS Gour. Dr. B.B. Asthana.

8. Singh, Ashik Kumar. *To study the relative efficacy of reinforcement response prevention and over correction in teaching arithmatic skills to educable mentally retarded.* BHU. Dr. S.S. Kaushik and Dr. B.D. Bhatia.

9. Singh, Rita. *Human performance on task related to STM and vigilance.* BHU. Prof. B.S. Gupta.

10. Singh, Shailaja. *Leadership and supervision.* BHU. Dr A.P. Singh.

11. Sinha, Poonam. *Effects of crowding and density in home environment on cognitive development of children.* BHU. Dr. Meenakshi Arora.

12. Verma, Sanjay Singh. *Effect of some electromagnetic radiation levels on four instinctive behaviour patterns of animals.* HS Gour. Dr. Jai Prakash and Dr. B.K. Srivastava.

Sociology

1. Chandel, Manmohan Singh. *Gaur Janjati ke do vibhinn arthik staron ka samaj shastriya adhyayan.* HS Gour. Dr. N.K. Gorha.

2. Kushwaha, Arunendra Kr. Singh. *Workers' socio-psychological study of organisation.* BHU. Dr. Arvind Kumar Joshi.

3. Sharma, Rakesh. *The pattern of urban leadership: A sociological study.* HS Gour. Dr. R.M. Ram.

4. Tiwari, Pramila. *Social motivation.* BHU. Dr. Sohan Ram Yadav.

Political Science

1. Agarwal, Vijay Rani. *National movement and Dr. Bhim Rao Ambedkar.* BHU. Dr. M.N. Tripathi.

2. Alexander, K. *A critical study of administrative reforms in Kerala.* Kerala. Dr. P.J. Alexander.

3. Antony, Joseph. *Indo-China relations: A study on ideological and security perspectives.* Kerala. Dr. P. J. Alexander.

4. Jayasenan, G. *Political polarisation in Kerala: Problems, analysis and trends of the state party system.* Kerala. Dr. M. Sreenivasan.

5. Jitendra Rai. *Nepal mein panchayati loktantra.* BHU. Prof. P. D. Kaushik.

6. Khare, Durgesh. *Organisation and function of public corporation: A case study of Varanasi Division of L.I.C. of India.* BHU. Prof. R.H. Sharma.

7. Khongchinda, Phara Mahachanya. *The Buddha's political and social ideas.* BHU. Prof. P.D. Kaushik and Dr. R.R. Jha.

8. Rai, Dinesh Kumar. *Hind Mahasagar shanti ka kshetra.* BHU. Dr. T.N. Pant.

9. Singh, Kamla Kant. 1984 *kee Loksabha ka rajanitik evam samajik adhyayan.* BHU. Dr. T.N. Pant.

10. Sisubalan, S. *Political elites in Kerala: A case study of the Congress and CPI (M) at the state level.* Kerala. Dr. M. Sreenivasan.

11. Sunayana Devi. *Adhunik bhartiya chintan mein rashtravad kee avadharana: Kuchh ayam.* BHU. Dr. A.S. Upadhyaya.

12. Upadhyaya, Poonam. *Indian renaissance and Raja Ram Mohan Roy.* BHU. Dr. H.N. Tripathi.

Economics

1. Bagga, Rajendra Singh. *Pattern of public sector investment in India.* BHU. Dr. G.S. Kushwaha.

2. Baigi, Nasser Hassan. *Role of small scale industry in the economy of Iran and India: A comparative study.* BHU. Dr. A.K. Jain.

3. Chourasia, Ajay Kumar. *Bharatiya gramin arthvyavstha ke vikas mein kshetriya bankon kee bhoomika: Chindwara, Swani kshetriya bankon ke vishesh sandarbh mein.* HS Gour. Dr. N.K. Sahu.

4. Gupta, Anjila. *Economics of developed countries: An analysis of development senstraints.* BHU. Dr. D.K. Srivastava.

5. Karna, Surendra Labh. *Development assistance: A case study of Indian aid to Nepal.* BHU. Dr. S.C. Srivastava.

6. Kasana, Chitra. *A study of non-economic factors in India's economic development.* HS Gour. Prof. R. Mahrotra.

7. Pokhrel, Badri. *Land revenue administration of Nepal.* BHU. Dr. G.S. Kushwaha.

8. Sanjay Kumar. *Indian trial economic.* BHU. Dr. A.K. Jain.

9. Shukla, Shashikant. *Sagar Jile kee nagarpalikayen,* 1975-76 *se* 1984-85 *tak: Ek arthik adhyayan.* HS Gour. Dr. M.L. Tripathi.

Law

1. Singh, Anil Kumar. *Collective bargaining and the labour relation law.* BHU. Shri Yogendra Singh.

2. Sinha, Vinod Behari. *Indian secularism, constitution and the society.* BHU. Dr. P.N. Singh.

Education

1. Pandey, Suman Kumari. *Sanskrit teaching and learning.* BHU. Dr (Smt.) N.K. Tripathi).

2. Rajesh Kumar. *Computer/microcomputer assisted: Analysis of IQ using electroencephography.* BHU. Dr. H.K. Singh.

Commerce

1. Jagwant Singh. *Productivity in the Indian banking industry.* Panjab. Prof. B.B. Tandon.

2. Malhotra, Keshav. *Development banks and industrially backward areas of Haryana.* Panjab. Prof. B.B. Tandon.

3. Surinder Kumar. *Public sector commercial banks in relation to economic development of backward areas in Himachal Pradesh and Haryana.* Panjab. Prof. Bidhi Chand.

Home Science

1. Sethi, Mohini. *Energy and nutritional requirements of coast guard personnel in India.* Delhi. Dr. (Mrs.) S. Malhan.

Management

1. Ambarish Kumar. *Household decision making : A study of durable purchasing.* Punjab. Prof. S.P. Singh.

2. Anand, Manoj Kumar. *Appraisal of industrial projects in Haryana State Industrial Development Corporation.* Panjab. Prof. S.P. Singh.

3. Dinesh Kumar. *Human resource accounting in India.* Panjab Dr. Kamal Gupta and Dr. B.L. Bansal.

4. Inder Jit. *Simulation model of an integrated business organisation for decision-making.* Panjab. Dr. R.P. Gupta.

5. Nauhria, Indu. *Physical distribution of fertilizers.* Panjab. Dr. Satish Kapoor.

6. Raghubans, Lachhi Ram. *An evaluation of supervisory and management development programmes in selected units of HMT Ltd., Bangalore.* Panjab. Dr. A.K. Srivastava.

7. Tewari, Pratap Shankar. *Management of human resources in Indian army: A case study.* BHU. Prof. A.K. Shah.

HUMANITIES

Philosophy

1. Stephenraj, D. *The concept of the will to power in the philosophy of Frederich Neitzsche.* Kerala. Dr. K. Saratchandran.

Fine Arts

Painting

1. Chhabi Lal. *Study of different stages of mountaineering art.* BHU. Dr. R.N. Mishra.

Language & Literature

English

1. Ajitkumar, T.M. *Tragic and comic elements in the novels of Anthony Burgess.* Kerala. Dr. N. Viswanathan.

2. Balvani, Preeti. *Thematic analysis of Robert Frost's poetry.* Devi Ahilya. Prof. R.N. Bharma.

3. Baus, G. Suhithar. *The neurotic world of Scott Fitzgerald.* Kerala. Dr. Jameela Begum.

4. Joseph, Annamma. *The oppressed self in the poetry of Sylvia Plath, Anne Sexton and Adrienne Rich.* Kerala. Dr. Jameela Begum.

5. Koshy, G. *Malayalam novels in English translation with special reference to Thakazhi and Basheer.* Kerala. Dr. N. Viswanathan.

6. Maya, D. *The Britishers in India as portrayed in Indo-Anglian fiction after independence.* Kerala. Dr. K. Radha.

7. Nayar, Renuka. *The plays of Sam Shepard: A semiotic approach.* Kerala. Dr. K. Ayyappa Panicker.

8. Pandey, Mahesh Prasad. *The use of English in advertisement in India: A sociolinguistic study.* BHU. Prof. R.S. Sharma.

9. Roy, Shanta Dutta. *Symbolism in the poetry of Philip Larkin.* BHU. Dr. (Mrs.) Alka Nigam.

10. Srivastava, Priti. *The Bronte Sisters: Feminism in their novels.* BHU. Dr. J.B. Mishra.

11. Vasant, Sherikar Anuradha. *Arnold Veskari: The working class predicament in his plays.* BHU. Dr. J.B. Mishra.

12. Veena Chand. *Role of Heroines in Shakespeare's tragedies.* Devi Ahilya Dr. R.C. Ojha.

Hindi

1. Bais, Asha. *Rajendra Yadav va Mannu Bhandari ke katha sahitya mein nari patron ka manovaigyanik adhyayan.* Devi Ahilya. Dr. (Mrs.) C.K. Agnihotri.

2. Biyani, Asha. *Gurudatt ke upanyason mein samajik, sanskritik va rajnitik chetana.* Devi Ahilya. Prof. G.D. Tripathi.

3. Rai, Rajiv Kumar. *Chhayavad kavya: Samvedana aur vichar ke antarsambandh aur antarvirodh.* BHU. Dr. R.N. Shukla.

4. Sharma, Sudha. *Hindi ke swatantrayottar pramukh upanyason mein vyang.* Devi Ahilya. Dr. (Smt.) C.K. Agnihotri.

5. Yadav, Siya Ram. *Nai kavita mein Madhyamvargiya mansikta ka swarup.* BHU. Dr. K. N. Singh.

Nepali

1. Thegin, Shobha Kanti. *Nepali samalochana kee parampara: Vishleshan tatha mulyankan.* BHU. Dr. D.R. Timsine.

Kannada

1. Maya Devi. *Study of place names in the Karnataka, Maharashtra Border area of two districts Gulbarga and Sholapur. A linguistic and cultural approximately in Knanada.* BHU. Dr. V. Shivanand.

Geography

1. Joshi, Shobha. *Tourism and hotel industries in Varanasi.* BHU. Miss P. Kapoor.

2. Mishra, Virendra Kumar. *Indore Nagar kee malin tatha avyavasthit bastiyan: Nagariya boomi upyog kee samsyayen aur nidan.* Devi Ahilya. Dr. (Kum) Vijaya Phanse.

3. Sharma, Hiralal. *Betul Chindwara Pathar: Gramin adhivason ke kshetriya pratiroop evam unmein parivartan kee pravrittiyan.* Devi Ahilya. Prof. A.A. Abbasi.

4. Shrivastava, Awdhesh Kumar. *Balaghat Mandala pradesh mein gramin adhivasion ke kshetriya pratiroop evan mein parivartan kee pravrittiyan.* Devi Ahilya. Prof. A.A. Abbasi.

History

1. Dubey, Kamlesh. *Pracheen Bharat mein yaksha pooja.* BHU. Dr. P.K. Agrawala.

2. Mungle, Manjiri Balkrishna. *Relations between Kolhapur and Satara, the two Maratha states in the 18th century.* Shivaji. Dr. A.R. Bhosale.

3. Singh, Shashi Kant. *Cultural study of Brahatanghita.* BHU. Dr. (Mrs.) A. Chattopadhyaya.

4. Sushila. *Gandhiji and education.* BHU. Dr. S.C. Mukhopadhyaya.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Bhargava, Meera. *A study of certain personality dispositions of drug abusers of Varanasi.* BHU.

2. Paul, Priscilla Viswas. *A study of value orientations of adolescent boys and girls.* Baroda.

3. Roy, Rumy. *An empirical study of the attitudes and certain personality characteristics of surgical patients of brest cancer.* BHU.

4. Singh, Balendra Kumar. *Investigation into some psychological correlates of accidents in Coal-mines.* BHU.

5. Sood, Pratibha. *Change proneness in higher education.* Osmania.

6. Srivastava, Nagendra Lal. *A study of attitude towards union in relation to employees' morale, job satisfaction, job involvement and job anxiety.* BHU.

Sociology

1. Chapala, Vijay Kumar. *A sociological analysis of surplus agricultural land distribution in Andhra Pradesh: A study of two villages in East Godavari District.* Andhra.

2. Gayatri Devi. *Gramin parivaron mein svasthya paricharya ka samaj vaigyanik adhyayan.* BHU.

3. Kabra, Govind Das. *Bureaucracy: Weaker sections and developmental process.* Sukhadia.

4. Mann, Kamlesh. *Status of Bhil women: Continuity and change.* Sukhadia.

5. Rajora, Suresh Chandra. *Tribal elites: A study of the emergence of elites among the Bhils.* Sukhadia.

6. Singh, Nita. *Nagariya parivarik jeewan mein samayojan kee samasyayen.* BHU.

7. Tandon, Sudha. *Social changes in Harrakhera Village of Bhopal District.* Bhopal.

Social Anthropology

1. Jahagirdar, Madhusudan Pralhadrao. *Traditional leadership and statutory Panchayat:* A case of Karnatak Village. Karnatak.

Social Work

Khetan, Krishan Kumar. *A study of charitable trusts in Rajasthan.* Sukhadia.

Political Science

1. Abdel Gaied Abdel Halim Mohd. Omarah. *Successionism in the Politics of the Congo Kinshasa, Zaire,* 1960-1978. JNU.

2. Aruna Devi, G. *The ethical bases and functional charter of the State in Kautilya's Arthashastra.* Patel.

3. Bhalerao, Harish Maruti. *A study in the development of Dr. B.R. Ambedkar's political thought.* Shivaji.

4. Borah, Binu. *Languages controversy in North East India and its impact on National integration.* Gauhati.

5. Ghosh, Pratyush Prasun Ghosh. *Cooperative movement: A study in administrative relations.* Burdwan.

6. Maurya, Radhika. *Kamandkiya nitisar mein rajtantra.* BHU.

7. Mohapatra, Bipin Bihari. *Legislative elite in Orissa. A study of the Eighth Assembly.* BHU.

8. Sharma, Sushila. *Bharatiya nirvachan mein matdata kee jagrukta evam bhagidari ka parimapan.* Vikram.

9. Sharma, Vijay Laxmi. *Evolution of the ideology of the Indian National Congress: Analysis of the manifestoes of the Congress from 1947 to 1975.* Sukhadia.

10. Sigamani, G. Virgin. *A study of local government politics of panchayats and development with special reference to Tirupparankundram Panchayat Union.* Madurai.

11. Singh, Sudhakar. *Uttar Pradesh mein kshetravadi rajniti.* BHU.

12. Yajurvedi, Bharati. *Kender-rajya sambandh: Kerala, Bengal evam Tripura ke vishesh sandarbh mein.* Vikram.

13. Yelegaonkar, Shrikant Dattatray. *A study of the nineteenth century political development in Maharashtra with reference to the City of Solapur.* Shivaji.

Economics

1. Agarkar, Rajguru Dattatray. *Existing transport facilities and possible future development of transport in Ratnagiri District.* Shivaji.

2. Baishya, Prabin. *The role of small scale and cottage industries: A case study in Kamrup District.* Assam.

3. Chug, Amar Chand. *The role of banks in the development of Rajasthan under integrated rural development programme.* Rajasthan.

4. Gharad, Madhao S. *Price policy in India from* 1970 *to* 1980. Nagpur.

5. Godra, Ratan Lal. *Rural economy of Sikar District.* Rajasthan.

6. Kavehi, Nasar. *Industrial development of Iran,* 1971-83. Vikram.

7. Khan, P.M. *Analysis of factors, in the adoption and discontinuance of modern agricultural technology among various categories of farmers.* Sukhadia.

8. Rameshwar Singh. *Role of Tulsi Gramin Bank in agricultural development in District Banda, U.P.* CSAT, Kanpur.

9. Rashid Masood. *Petrochemical industry in Saudi Arabia: A self-reliant or dependent development.* JNU.

10. Rawat, Gopal Singh. *Credit needs of changing agriculture in Hill Region of U.P.* CSAT, Kanpur.

11. Sarma, Aswini Kumar. *Capital requirement or modernisation of agricultural production in Haryana.* HAU.

12. Selvanathan, S. *Occupational diversity and mobility among scheduled castes in Tamil Nadu.* JNU.

13. Sharma, Bihari Lal. *An analysis of fertiliser consumption in Madhya Pradesh with special reference to factors influencing its use.* Durgawati.

14. Sharma, Krishnavallabh. *Malwa kshetra mein kshetriya udyogik vikas.* Vikram.

15. Sharma, Shashi Kant. *Copper industry in Rajasthan.* Rajasthan.

16. Singh, Harendra Narain. *Economic life and progress in Ancient India as depicted in Jain Canons.* Magadh.

17. Sodhiya, Hukum Chand. *An economic analysis of land use pattern in Sagar Division.* HS Gour.

18. Thakur, Gandharva Singh. *Critical analysis of conventional pest management under the new farm strategy in Madhya Pradesh.* Durgawati.

Public Administration

1. Giri, Mehtab Nand Kumar. *Centre-state relations in educational planning and administration with reference to the State of A.P.* Osmania.

Education

1. Bagchi, Jyoti Prakash. *A comparative study of attainments in selected learning outcomes to higher secondary students in schools following different Biological science curricula.* BHU.

2. Chaudhary, Renu. *Attitudes of teachers and administrators towards population education in Rajasthan.* Sukhadia.

3. Dani, Deoki Nandan. *Scientific attitudes and congnitive styles of higher secondary students.* Sukhadia.

4. Dwivedi, Bhanvar Lal. *The evolution of educational thought in India.* Vikram.

5. Gaur, Ashwani Kumar. *A comparative study of role of Head of the Department in the University of Rajasthan.* Sukhadia.

6. Kesari Hanuman. *The Gita as learning process with reference to modern education.* Osmania.

7. Khadilkar, Meenakshi Prabhakar. *A study of the Hindi vocabulary of Marathi speaking children learning in standard V and VI.* Shivaji.

8. Md. Abul Ehsan. *An evaluative study of the environmental education programmes in the primary schools of Bangladesh.* Delhi.

9. Nagar, Divya Prabha. *A study of socio-psychological problems and personality patterns of the deprived children living in destitute homes of Rajasthan.* Sukhadia.

10. Pandey, J.B. *Gita aur Kuran ke shiksha darshan ka tulnatmak adhyayan.* Kumaun.

11. Pandey, Shree Niwas. *Effectiveness of advance organizer and inquiry training models for teaching social studies to VIII class student.* BHU.

12. Panwar, P.S. *Roles of academic achievements and school background in self-concept, self-disclosure and inferiority feeling among students of Kumaun Hills.* Kumaun.

13. Pareek, Ramesh Chandra. *A study of secondary school teachers perceptions of their own roles and students perceptions of their teachers' classroom behaviour.* Sukhadia.

14. Premchand, Vibha. *Health misconceptions in high school children of Andhra Pradesh with special reference to Telangana Region.* Osmania.

15. Raghuraj Singh. *A study of self-concept aspirations and achievement motivation of tribal adolescent of Rajasthan.* Sukhadia.

16. Rajveer Singh. *A study of effectiveness of traditional media for tribal development in Udaipur District.* Sukhadia.

17. Rout, Pravaker. *Development of concepts in environmental studies among socially disadvantaged and normal elementary school children.* Utkal.

18. Rukmini Devi. *Study of science education in the secondary schools of Nepal with a view to evolve a functional model for improving science education.* Delhi.

19. Sabhasundar, Emmanuel Joseph. *A programme for changing the awareness of social realities among the B.C. in Orissa.* Baroda.

20. Saleh, Awad Aram. *A comparative study of Mathematics education in People's Democratic Republic of Yemen and India.* Delhi.

21. Satyanarayana, M. Savitri. *An educational system of 16th century in the Telugu State.* Osmania.

22. Sharma, Kamal Dutt. *Effects of socio psychological variates on participation and use of message by the literates under National Adult Education Programme.* Sukhadia.

23. Sharma, Mohan Prakash. *Organizational structures and climate of universities in Rajasthan.* Sukhadia.

24. Sharma, Ramesh Chandra. *Teaching aptitude, intellectual level and morality of prospective teachers.* Sukhadia.

25. Singh, Chandra Hans. *Problems and adjustment patterns of children living in destitute homes in Uttar Pradesh.* BHU.

26. Soumini, Pananghat. *A course design based on communicative approach for English language teaching in regional medium high schools.* Andhra.

27. Tewari, Manju. *Kumaun Vishwavidyalaya ke lagat vishleshan ka adhyayan, 1974-82.* Kumaun.

Commerce

1. Bardia, Subash Chand. *Working capital management of iron and steel industry in India.* Rajasthan.

2. Belagali, Bhimsen Narayanrao. *Availability and utilisation of credit facilities by small farmers in Sangli District.* Shivaji.

3. Bhatia, Bharti. *Responsibility of employees towards workman in the cotton textile industry in Rajasthan: A critical review in relation to the social responsibility, function of management.* Sukhadia.

4. Chindambaram, K. *A study of the handloom pure silk industry in Tamil Nadu.* Madurai.

5. Goswami, Mihir Kumar. *Analysis of economic development of Malda District since independence with special reference to sericulture and main orchard crop.* NBU.

6. Gupta, Ramjee Lal. *Management development in public sector undertakings in India with special reference to selected commercial undertakings.* Sukhadia.

7. Joshi, Atul Kumar. *Uttar Pradesh ke suti vasthra udyogon mein vartman shramik samasyaen evam unka samadhan.* Kumaun.

8. Khan, Anwar Khurshid. *Industrial sickness in Bihar: A case study of sick small scale enterprises at Adityapur Industrial Complex.* Magadh.

9. Malodia, Ganpatlal. *Profitability assessment of Engineering Industry in Rajasthan.* Rajasthan.

10. Mehta, Basant. *The organisation and working of lead bank scheme in Rajasthan.* Sukhadia.

11. Menaria, Shankerlal. *Cooperative banks and rural finance in Rajasthan.* Sukhadia.

12. Pathan, Abdul Gaffar. *Ratlam Jile kee swayat sansthaon ke vishesh vishleshan.* Vikram.

13. Salunkhe, Dattatraya Dnyandeo. *Marketing of educational services: A case study of the Konkan Krishi Vidyapeeth, Dapoli. Maharashtra.* Shivaji.

14. Satyanarayana, Kunisetty Rama. *Imitation jewellery: A case study of gold covering and gold plating imitation jewellery manufacturing units in Machilipatnam, Andhra Pradesh.* Andhra.

15. Sinha, Krishna Kumar. *A study of social security measures for industrial workers in Jamshedpur Industrial Complex with special reference to TISCO.* Magadh.

Home Science

1. Das, Bijayalaxmi. *Impact of Mahila Samiti on home management practices in rural Orissa.* Utkal.

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The Molecular Biology Group of the Tata Institute of Fundamental Research admits, each year, a small number of Research Scholars for pursuing basic research in modern biology. The Research Scholars work towards a Ph.D. in one of the following areas:

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Research Scholarships carry an initial monthly stipend of Rs. 1400/-. The appointments are made for a year at a time but are renewable upto a maximum of 5 years. Candidates called for interview from outstations will be paid 1$\frac{1}{3}$ railway fare each way by second class (not air-conditioned) and a sum of Rs. 35/- as halting allowance for the day on which they are interviewed.

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Prescribed application forms may be obtained by writing to the Administrative Officer (Establishment), Tata Institute of Fundamental Research, Homi Bhabha Road, Bombay 400 005 alongwith a self-addressed stamped (Rs. 2.20) envelope of approximately 25 cms x 12 cms. The last date for receiving applications in the prescribed form is **March 15, 1987.**

Please Note :

Applicants who wish to be considered for the summer training programme (see accompanying advertisement No. 2/87) need not apply separately, but should mention in the prescribed application form their desire to be included in the programme.

Tata Institute of Fundamental Research

Homi Bhabha Road, Bombay-400 005

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If you are a student in the second year of M.Sc. or equivalent with a very good academic record and a strong interest in doing research in biology, you may apply to spend about six weeks this summer working at the Molecular Biology Unit of the Tata Institute of Fundamental Research. The areas in which you can work will include biochemistry, developmental biology, molecular genetics and neurobiology. To be considered, send your application to the Administrative Officer (Establishment,) Tata Institute of Fundamental Research, Homi Bhabha Road, Bombay 400 005, so as to reach him before **March 15, 1987**. The following details would be required :

1. An authenticated copy of your bio-data and academic record, one page.
1. An autobiographical essay, one page.
3. A clear statement of purpose as to why you are interested in coming here, one page.
4. A choice of dates; indicate a continuous period of six weeks between 1st May and 30th June, 1987 which would suit you (give one or two alternatives, because a hostel room may not always be available; **if you do not need accommodation, say so).**

Request two persons who are acquainted with you academically to send letters of recommendation directly to the above address, before **March 15, 1987**. Selected candidates will be informed individually. During the period of your stay here, you will be paid a stipend of Rs. 600/- per month, return second class rail fare from your place of residence to Bombay and if you desire, will be provided with hostel accommodation at your own cost (this will work out to not more than Rs. 200/- a month).

Please Note :

If you are already applying for the Research Scholar Programme leading to a Ph.D. in Molecular Biology (see accompanying advertisement No. 1/87) you need not separately apply for the summer programme but mention your desire to be included in this programme.

NUCLEAR SCIENCE CENTRE

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APPLICATIONS are invited for the undermentioned posts in this Inter University Research Facility which is being established as an autonomous organization.

1. **ELECTRONICS ENGINEERS**: B.E./B.Tech in Electronics. Experience in analogue as well as digital systems. Preference will be given to those who have experience in instrumentation development and maintenance. Exposure to microprocessor systems desirable.

2. **MECHANICAL ENGINEERS**: B.E./B.Tech in Mech. Eng. Minimum of three years experience in design, development and fabrication of vacuum systems or in erection and commissioning of plants.

SALARY: Depending upon qualification, experience and overall suitability pay may be fixed at any appropriate stage in any of the pay scales mentioned below. Total emoluments with H.R.A. at the minimum of the scales are indicated within bracket (To be revised)

Rs. 700-40-900-EB-40-1100-50-1300 (2123.98)
Rs. 1100-50-1600 (3025.50)

Positions presently carry benefits same as admissible to Central Government employees. Accommodation, if needed, will be arranged at 10% of pay till the residential complex is ready.

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APPLICATION FOR THE POST OF ....

1. Name in full Mr/Mrs/Miss : (All capitals)
2. Address for correspondence : (Give PIN Code)
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4. Date of Birth :
5. Marital Status :
6. Educational Qualification : (Must give %age marks in each exam starting from X class and Name of the Boards/College/University)
7. Professional Training : (Organisation/Period/Details of training)
8. Employment Record in chronological order : (Give detailed break-up of earnings in your last/present job Basic pay, other allowances & total emoluments)
9. Give a brief resume : (200 words) highlighting your experience
10. Name and address of two persons (not relations) to whom a reference can be made regarding your professional competence.
11. Any other information you may wish to add.

PLACE DATE SIGNATURE

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Applications typed on plain paper in the given proforma with a passport size photograph and copies of mark sheets of each exam should reach the DIRECTOR, NUCLEAR SCIENCE CENTRE, POST BOX 10502, NEW DELHI - 110 067 before **FEBRUARY 23, 1987.**

OFFICE OF THE REGISTRAR
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(Pre-Veterinary Test/Pre-Agriculture Test)

The University will Sold a Competitive Examination on May 16 and 17, 1987 at Kanpur, Mathura, Bareilly, Varanasi, Faizabad and Gorakhpur Centres fro selecting candidates for admission to the following programmes:

Programme	Duration	Minimum eligibility qualifications
(1) B.V.Sc. & A.H. (Veterinary Course) of C.S.A. Univ., at Vet. Coll., Mathura.	Five years	Passed Intermediate Examination in Science with Biology or Agriculture or any examination recognised as equivalent thereto.
(2) B.Sc. (Ag. & A.H.) (Agriculture Course) of C.S.A. Univ., at Coll. of Agri. Kanpur.	Four years	Passed Intermediate in Agriculture/Science or any examination recognised as equivalent thereto.
(3) B.Sc. (Ag.) of N.D. University of Agri. & Tech., Kumarganj, Faizabad.	Four years	Passed Intermediate in Agriculture/Science or any examination recognised as equivalent thereto.

Candidates who are appearing at the Intermediate Examination of 1987 may also apply but their admission will be subject to their passing the Intermediate Examination.

Candidates seeking admission should not be above 22 years of age on 1-7-1987. Upper age limit is relaxable by 3 years in case of S.C./S.T. and Backward caste candidates.

A set of application form including 'Information Bulletin' containing inter-alia syllabi and rules for the Entrance Examination can be had either from the Office of the Registrar, C.S. Azad University of Agriculture and Technology, Kanpur/Registrar, N.D. University of Agriculture and Technology, Kumarganj, Faizabad or from the Assistant Registrar, College of Veterinary Science and Animal Husbandry, Mathura on cash payment of Rs. 10.00 (Rupees Ten) only. Candidates desirous of getting the application form by post are advised to send to the Registrar, C.S. Azad University of Agriculture and Technology, Kanpur-208 002.

A crossed Bank Draft for Rs. 15.00 (Rupees Fifteen) only issued by the State Bank of India in favour of the **Comptroller, C.S. Azad University of Agriculture and Technology, Kanpur** payable at State Bank of India, C.S.A. University Branch, Kanpur (Code 3809).

The candidates should clearly mention their postal address at which the application form is to be sent.

Complete application forms will be received in the Office of the Registrar, C.S. Azad University of Agriculture and Technology, Kanpur latest by **March 15, 1987.** Application forms can also be received upto **April 15, 1987** with additional late fee of Rs. 20.00 (Rupees Twenty) only.

Incomplete application forms or those received after the due date shall not be accepted.

The University will not be responsible for any postal delay or delay on the part of the candidates in submitting the application forms after the due date.

S.P. Tewari
REGISTRAR

NUCLEAR SCIENCE CENTRE

Post Box No. 10502, New Delhi-110067

APPLICATIONS are invited for the post of SCIENTIST from persons interested in the development of a nuclear accelerator and associated facilities.

ELIGIBILITY : Masters degree (fresh) in Physics or Engineering Physics or Applied Physics. Students in the final years can also apply but results must be available before July 1987. Selected candidates will be fixed in a grade after training. Some will be sent abroad for degree in Accelerator Physics or appropriate training.

SALARY : The pay scale is mentioned below. Total emoluments with H.R.A. at the minimum of the scale is indicated within brackets (To be revised soon as per 4th Pay Commission recommendation).

Rs. 700-40-900-EB-40-1100-50-1300 (Rs. 2123.98)

Positions carry benefits same as admissible to Central Government employees. Accommodation if needed will be arranged at 10% of pay.

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PROFORMA FOR APPLICATION

1. Name in full Mr/Mrs/Miss (All capitals)
2. Address for Correspondence (Give Pin Code)
3. Address for receiving telegrams
4. Date of Birth
5. Marital Status
6. Educational Qualifications (Must give (a) Percentage marks in each exam starting from Class X and (b) Name of the board/college/univ.)
7. Name and Address of two persons (not relations) to whom reference can be made regarding your professional competence.
8. Any other information you may wish to add.

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Application typed on plain paper in the given proforma with a passport size photograph and copies of marksheets of each exam should reach the DIRECTOR, NUCLEAR SCIENCE CENTRE, POST BOX 10502, NEW DELHI - 110 067 before **FEBRUARY 10, 1987.**

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CLASSIFIED ADVERTISEMENTS

GOA UNIVERSITY

BAMBOLIM, GOA-403005

Dated: 21st January, 1987

Applications are invited for the following posts in the prescribed forms (10 copies) together with zerox copies of certificates and an application fee of Rs. 10.00 (Rs. 5.00 for candidates belonging to SC/ST), available from the Registrar, Goa University, Bambolim, Goa - 403 005 on payment of Rs. 10.00 by a Demand Draft drawn in favour of the Registrar and payable at the State Bank of India, Bambolim Goa - 403 005 so as to reach him on or before **15th March, 1987** for inland and **30th March, 1987** from candidates abroad. Prescribed forms of application can be had in person free of charge from the Registrar's office.

Sr. No.	*Name of the Post*	*No. of Posts*
1.	Professor of Physics	1*
2.	Professor of Microbiology	1
3.	Professor of Commerce and Business Management	1
4.	Reader in English	1*
5.	Reader in Organic Chemistry	1
6.	Reader in Inorganic Chemistry	1
7.	Reader in Political Science	1
8.	Reader in Physics	1
9.	Reader in Commerce and Business Management	1£
10.	Lecturers in English	1
11.	Lecturers in Marathi	1
12.	Lecturer in Hindi	1
13.	Lecturer in Hindi	1*
14.	Lecturer in History	1
15.	Lecturer in Economics	1*
16.	Lecturer in Sociology	1
17.	Lecturer in Political Science	1
18.	Lecturer in Philosophy	1
19.	Lecturer in Philosophy	1
20.	Lecturer in Mathematics	1
21.	Lecturer in Physics	1
22.	Lecturer in Physical Chemistry	1
23.	Lecturer in Organic Chemistry	1
24.	Lecturer in Inorganic Chemistry	1
25.	Lecturer in Geology	1£
26.	Lecturer in Commerce and Business Management	1

*Reserved for SC £-Reserved for ST-It may be noted that if the suitable candidates under reserved category are not available, the posts would be filled by candidates from general category.

2. The scales of pay will be as prescribed by the University Grants Commission for the relevant post. The post also carry allowances as admissible to Central Government employees. A higher starting pay may be considered for exceptionally qualified person.

3. The details regarding educational qualifications required for these posts can be had from the office of the Registrar alongwith the prescribed forms.

Dr. S.K. Gandhe
REGISTRAR

NATIONAL INSTITUTE OF EDUCATIONAL PLANNING AND ADMINISTRATION

17-B, Sri Aurobindo Marg,
New Delhi - 110016

Applications are invited for following posts:

1. **Fellow (Distance Education)** : Rs. 1200-50-1300-60-1900 (one post) (likely to be revised).

(a) **Qualifications**

Essential

(i) Should have consistently good academic record with first or high second class (B+) Master's degree in Education, Social Sciences, Educational Technology or disciplines allied to Educational Planning and Administration of an Indian University or an equivalent degree of a foreign University;

(ii) **Either** a doctorate degree of an Indian or foreign university **or** published research work of a high standard or outstanding academic contribution in distance education/educational technology; and

(iii) Atleast 5 years' experience of teaching/conducting and/or guiding research.

OR

Atleast 5 years' administrative/professional experience in Distance Education.

(iv) Proven merit in writing/editing/documenting/professional work.

Desirable

(i) Experience of writing/editing instructional material for distance education and imparting instruction through distance education techniques.

(ii) Experience of teaching, conducting and/or guiding research in distance education/educational technology.

(iii) Familiarity with problems and Issues concerning planning and administration of education.

(b) **Age** : Below 45 years.

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(One of these posts reserved for Scheduled Caste/Tribe).

(a) **Qualifications**

Essential

(i) A doctoral degree or equivalent published work with a First or High Second Class Master's degree in Education Social Sciences or disciplines allied to educational planning and administration or equivalent degree of a foreign University with some experience in the field of Educational Policy (for one post), Educational Administration (for the second post) and Educational Planning (for the third post) respectively.

(b) **Age** : Below 35 years.

3. **Senior Technical Assistant** (3 Posts including one reserved for Scheduled Caste): Rs. 1640-60-2600-EB-75-2900.

(a) **Qualifications**

Essential

Atleast Second Class Master's degree in Education, Social Sciences or disciplines allied to educational planning and administration.

Desirable

Adequate experience in organisation of training programmes, report writing and collection, compilation and analysis of data/material relating to (i) the sphere of education at sub-national level for one post, (ii) comparative education at international level for the second post and (iii) distance education/educational technology for the third post.

(b) **Age :** Below 30 years.

4. **Senior Stenographer (English) :** One post : Rs. 1400-40-1600-50-2300-EB-60-2600.

(a) **Qualifications**

Essential

A Bachelor's degree with minimum speed in English Shorthand 120 w.p.m. and Typerwriting speed 40 w.p.m.

Desirable

Two years experience as Stenographer in a Government department/organisation of repute.

(b) **Age :** 18-28 years.

5. **Junior Stenographer (English) :** One Post — Reserved for Scheduled Tribe candidates. Rs. 1200-30-1560-EB-40-2040.

(a) **Qualifications**

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(b) **Age :** 18-28 years.

All posts carry the usual allowances as are admissible under the Central Government rules. Applications with full bio-data particulars alongwith attested copies of certificates, a recent passport size photograph and a non-refundable crossed postal orders of Rs. 8/- (no postal orders is required in the case of Scheduled Caste/Scheduled Tribe candidates) endorsed in the name of the Registrar, NIEPA, 17-B, Sri Aurobindo Marg, New Delhi - 110016, should reach the undersigned latest by **25th February, 1987.** Qualifications and age are relaxable for otherwise well qualified candidates. Candidates from outside Delhi called for interview will be paid single return train second class fare. Candidates already in employment in Government/semi-government Department/Autonomous Bodies should send their applications through proper channel. Other things being equal, preference will be given to Scheduled Caste/Scheduled Tribe candidates.

K.L. Dua
ACTING REGISTRAR

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DHANBAD-826004

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D.K. Sinha
DIRECTOR

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House,
16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429.
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E 2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

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UNIVERSITY NEWS

VOL. XXV FEBRUARY 9
No. 6 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor :
SUTINDER SINGH

Educational Contributions of Zakir Husain

S.P. Ruhela*

The article by Prof. Ruhela and the story "Tortoise and the Hare" by Zakir Saheb, as millions of his countrymen fondly remember him, are being carried as a birthday tribute to that great visionary, Dr. Zakir Husain, whose thoughts and deeds will continue to inspire many a generations. Zakir Saheb was born on 8 February 1897.

I

As soon as we start thinking of the great educationists of India who lived and influenced us in this very century, the names of Mahatma Gandhi, Dr. S. Radhakrishnan and Dr. Zakir Husain instantly appear and dance before our mental vision. In the trinity of Indian educationists, Dr. Zakir Husain holds a unique place, for he not only combined in him the genuine patriotism and pragmatism of Gandhiji and the wisdom and idealism of Dr. Radhakrishnan, but even more than them he had his own distinct charismatic personality of an inspired, dedicated, creative and practical educationist committed to change the Indian society through the instrumentality of a functional sort of education.

To write about his educational contribution is a difficult and challenging task, for he did not leave behind many big books written by him. The books attributed to him are *Talimi-Kudbat* (Urdu), *Educational Reconstruction in India*, *The Dynamic University*, and *President Zakir Husain's Speeches*—and all these are collections of his speeches in different forums. While his colleagues in the Jamia Millia Islamia and the Aligarh Muslim University in which he worked as Vice-Chancellor, often tell us some interesting incidents about him, not many of them are in print. So our source of information besides whatever is available in print is all that is known about the utopian experiment of developing the Jamia by Dr. Zakir Husain.

II

The Jamia's Utopia and its Social Contexts

Let us recall that there were three prominent aspects of the social settings in which Dr. Zakir Husain's educational ideas originated, developed and were put into operation in the form of practically building up the Jamia in a utopian manner:

(1) During the *Khilafat* or Non-Cooperation movement in the country's struggle for freedom, in response to Gandhiji's call to boycott the British government supported educational institutions, Jamia Millia Islamia was founded at Aligarh in 1920. Among those who enthusiastically responded to this call were Maulana Mahmud Hasan, Maulana Mohammad Ali, Hakim Ajmal Khan, Abdul Majid Khwaja and young Zakir Husain. These eminent personalities alongwith others founded the Jamia, which

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**Head, Department of Teacher Training and Non-Formal Education, Jamia Millia Islamia, New Delhi - 110 025.*

moved from Aligarh to Delhi in 1925. Dr. Zakir Husain was appointed as the Vice-Chancellor of the Jamia in 1926 and thus the responsibility of keeping alive this newly-established national university against all odds fell on his shoulders.

(2) Zakir Husain went to Germany to do Doctorate in Economics for a few years between 1921 and 1925, and there he came in contact with a number of German educational thinkers. He came under the great influence of German educationist Kerschensteiner and a number of other champions of the 'New Education movement in the West, such as Dewey, Nunn, Kilpatrik, Spranger etc. From them he learned many valuable educational ideas related to child development, project method of teaching and learning, community approach to teaching and learning, productive work, idealism, freedom, and social and national service. These ideas became articles of faith with him, and they guided him in conducting the Jamia experiment and in his expressions at all times.

(3) In 1937 Gandhiji gave out his ideas on Basic Education to the nation, and soon thereafter when Indian political and educational leadership got up to do something concrete in that direction, it fell to the good lot of the Jamia's young and energetic Vice-Chancellor Dr. Zakir Husain to be picked up by Gandhiji to act as Chairman of the Basic National Education Committee. "He took Gandhiji's rough-hewn ideas and gave them an educational mystique as well as appropriate techniques of work. He linked practical work with intellectual work in a fruitful union. . . . "

It was in this context of the newly developed enthusiasm for Basic Education that under the inspiring leadership of Dr. Zakir Husain the Teachers Training Institute to train teachers for Basic Schools was established in the Jamia in 1938. On this account the Jamia became famous overnight in the educational world. That Teacher Training Institute became Teachers College after Independence and in 1980 it grew into a full-fleged Faculty of Education having three departments which now offer as many as ten courses, right from Basic Teachers Training Course for the primary teachers to M. Phil. (Education) course and Ph.D. programme.

The Enchanting Utopia that the Jamia was !

When Dr. Zakir Husain took up the reins of the Jamia in 1926, there was a great scarcity of funds. "The Jamia was constantly plagued by financial problems, so much so its closure was imminent. During those trouble-ridden years, Zakir Husain taught on a measly salary of Rs. 75 per month while his colleagues drew double the amount. His belief in the role of the Jamia as an integrating force persisted, and he was determined that the work should not collapse. His personal lobbying with philanthropists led not merely to its revival, but the establishment of a fund of over Rs. 2 crore."

Since funds were scarce but commitment to nationalism and the pedagogical ideas of the 'New Education' movement and the Basic National System of Education was intense in the hearts of Dr. Zakir Husain and his colleagues in the Jamia, their all attempts to conduct the educational experiment in fact turned out to be a big and endless series of problem-solving ventures. It is in this context that low cost educational practices, materials and teaching strategies were invented, adapted and tried, and original and indigenous ideas for a functional reconstruction of Indian education were developed. A unique socialist society was established in which all teachers were paid equally. Amidst great personal inconveniences and deprivations in dusty, rural, mosquito-ridden, isolated surroundings, these teachers flocked together to work under the dynamic leadership of Dr. Zakir Husain. His leadership was charismatic and it had many superb traits—his open-mindedness, his congeniality and warmth of heart, his sensitivity to the nature and needs of the children, problems and potentials of his teachers and workers, and the needs and aspirations of the Muslims in particular and the Indian society in general, his unique strategies of establishing human relationships and exacting higher standards of professional work form his colleagues, his humour, his cordial praise to good workers and very critical criticism of slack workers, his prophetic wisdom and advice, his keen desire to implement new pedagogical ideas into actual practice, his haste in getting things done, his transparent sincerity, his belief in humanity at large, and, above all, his being completely free from the narrow considerations of religion, caste, class, locality or political affiliation. It was this magnetism of his charismatic personality that attracted people of diverse backgrounds—communists as well aristocrats, upper as well as lower castes Hindus as well Christians and Muslims to become his workers on egalitarian socio-economic footing, and fuse their hearts and minds into one and contribute their very best to make the Utopia a practical reality.

Conducted in the culture of poverty, nobility of goals and high degree of commitment, this utopian experiment in the Jamia under the leadership of Dr. Zakir Husain was in no way lesser in significance than the experiments of Gandhiji at the Tolstoy Farm, Phinix Farm etc.

Many new ideas and practices were actually initiated in the Jamia. Basic Teachers Training Institute started in 1938 emphasized craft work, community living, co-curricular activities, working with community, correlation, and internal assessment. In the Jamia school, encouragement was given to "the study of local environment, contact with the local community and creative projects of social service which were later incorporated in the scheme of Basic education."

Saiyidain informs us that other features which found acceptance in many experimental and national schools as well as public and government schools "included recognition of the principle of activity in learning and formation of character, the social orientation of the educational forces and the encouragement of a spirit of experimentation in teachers who were enthused to work as pioneers of a new movement rather than as ill-paid mercenaries."

The Jamia tried Project method, encouraged self-government among students and promoted art, spirit of idealism and social service.

Dr. Mujeeb Ashraf rightly reminds us:

> "..The focus of education in the Jamia was by no means to maintain the separate identity of the Muslims, so much as to instil genuine nationalistic and humanitarian values among students. Dr. Zakir Husain always felt that if a person was proud of his creed, whatever its form, he should be equally proud of being an Indian.
>
> ..The suave, out-going person that he was, the Vice-Chancellor employed tact rather than authority as a pedagogical approach, and his style of functioning was so infectious that an informal yet disciplined atmosphere pervaded the campus."

The picture of the Utopia that the Jamia was during Dr. Zakir Husain's days can best be described by the following realistic, poignant and vivid sketches drawn by Dr. Zakir Husain himself while delivering the Convocation address in the Jamia in 1964:

> "My old colleagues will remember that the time we passed together was one of great hardships, but I feel that the days of poverty and deprivation were also days of happiness. There was a longing to build and nothing to build with. There were no resources, but only the will to achieve. We had an ideal before us and our hearts were filled with a spirit of dedication. There was no desire for the exercise of authority, only a determination to attain excellence in our work. We desired the rapture of devoted service and had no time to think of monetary compensation. In the eyes of every child who came to us we saw the image of freedom."
>
> "..The only correct and effective way to bring Hindus, Sikhs and Muslims together and to make them brothers and comrades is the way adopted by the Jamia Millia."
>
> "..It has been a tradition of the Jamia to allow full freedom of thought and speech, and to pay as much regard as possible to individual teacher."
>
> "..The Jamia campus offers a picture in which work and pleasure, freedom and concentrated endeavour are combined in an attractive composition.."
>
> "..In the Jamia, education has from the beginning been a kind of culture. While from one point of view this education could be regarded as a process of increasing the knowledge and developing the attitudes of the young, it was from another point of view an attempt to induce the young to cultivate pleasing and socially valuable qualities."

This then is the moving story of the great utopian experiment in Indian education conducted by Dr. Zakir Husain. Herein he experimented with his ideas and perfected them. Jamia was thus the workshop of this great socially oriented humanist turned educationist.

III

The Key Ideas of Dr. Zakir Husain

Let us now turn to our other source—the writings of Dr. Zakir Husain in which he gave expression to his most cherished ideas on the various themes of Indian education. Although he commented on a variety of educational themes, my study of his writings reveals to me that his most favourite themes have been the 1. Aim of Education; 2. Cultural Synthesis; 3. Secularism; 4. Freedom; 5. Nature of Child; 6. Productive Work in Education; 7. Role of Teacher; 8. Functions of University; and 9. Educational Reconstruction in India. Let us briefly recall how sharply he reacted to these vitally important themes of this century's Indian education:

Aim of Education

Convinced at heart that a cultured human being is the end educational product, Dr. Zakir Husain defined education as "the individualised subjective revivification of objective culture. It is the transformation of the objective into the subjective mind. It is individually organised sense of values awakened by goods of culture which are embodiments of the values accessible in experience to the persons concerned." He was thus a votary of the cultural aim of education. In his curricular design for schools, music, art, dance, drama, games, sports, cultural celebrations, social service and the like were given central position. We are now vigorously advocating the case of 'Education in Human Values' forgetting to give due credit for it to Dr. Zakir Husain who indeed pioneered it 40-50 years back.

Cultural Synthesis

Dr. Zakir Husain's commitment to cultural synthesis is transparent from his following heart-felt words:

> "..something deep down in me seems to furnish me with the belief that providence has destined India to be the laboratory in which the greatest experiment of cultural synthesis will be undertaken and successfully completed. India's mission in the world history seems to one to be evolution of a distinct type of humanity, combining and harmonising in itself the lives of the diverse types which history has produced all blended together to form a new type that might evolve a characteristic and, perhaps, more satisfactory patterns of civilized existence than those in vogue at present."

From such a belief emerged his conception of the Indian State:

> "..(Our) State is the expression of our collective strength, the condition of our ordered and peaceful strength, the symbol of our cooperative endeavour, the embodiment of justice and morality, the promoter of our excellence, the custodian of all that is good in our past, and the guarantor of our future destiny."

These quotations clearly point towards the challenges Dr. Zakir Husain earnestly wanted our educational system to take up.

Secularism

Dr. Zakir Husain held that "We are secular because that is the only sane policy that we can have in a multi-religious society. Secularism does not mean irreligion but equal respect for all religions."

He believed that "..If we in this land, speaking different languages and representing different cultures learn to live in harmony and peace, we will, in our own way, be able to set up a good example to others of understanding and reconciliation."

There can be no better, clearer, simpler and more authoritative explanation of the concept of secularism in India than this.

Freedom

In the long history of four thousand years of Indian education right from the days of the Vedic Gurukulas, never was the concept of freedom in education and civic life contemplated and so vigorously advocated till Dr. Zakir Husain championed its cause in the 1920's and 1930's. He wanted freedom to be given to children to grow, think, create, play, enjoy and appreciate nature and culture. He wanted freedom to be afforded to teachers to plan, innovate, act, teach, change and speak. He wanted freedom to be enjoyed by university teachers and executives to think, act and express. He wanted freedom to be allowed to all citizens of the country to grow according to their abilities, at their pace, harnessing the richness of their cultural milieu.

He advised teachers and parents not to spoil children under their charge by terror, dogmas, indoctrination, excessive love, over-protection or forced unproductive educational work, but to help them, serve them and understand them in "Faith, Love and Reverence".

Never had anyone in India before Dr. Zakir Husain given such a courageous statement about the inherent freedom of the university teachers and functionaries as he did while giving his Convocation Address at the Panjab University in 1960:

> "..these (teachers, students and administrators) can function fruitfully if they all have the feeling of being free, responsible members of a free academic community—free to think, free to express their thoughts, free to refuse to conform, free to be unorthodox, free even to err. . . . It is only in such freedom that one develops that

> invaluable quality, moral courage, to speak out freely, frankly and fearlessly when the moral good of society is involved. ..Universities are houses of ideas; enquiry and challenge are their function; to question established patterns is almost their business in a progressive society. Let society ensure that they can perform this function untempered and unmolested."

Dr. Zakir Husain, however, did not fail to remind us that "Freedom is never given, it is earned, and kept only by those who continue to earn it every minute of their active live."

Nature of the Child

His concept of the childhood is a romantic one and at the same time very much psychological. He considers that the child is full of innocence, vitality, activity, and unlimited potentialities to grow. The child craves for freedom, joy, play and creativity. The growth of children should not be curbed or blunted by our insensitivity. The child is not a 'mass of wet mud' whom one may give any shape he likes; he should not be treated as a 'plaything' by elders, nor elders should allow the child to treat them his 'playthings'. Schools should not be 'dark places of education' whose sad memories might haunt them all their lives; they should cease to be "instruments of some devil" wherein the personalities and mirth of the children are mercilessly crushed. Individual differences in children should be recognised and provided for by teachers and parents. Dr. Zakir Husain believed that the "best educational results can only come if the appropriate avenues of receptivity in every child are brought into contact imaginatively with the corresponding cultural goods."

Productive Work in Education

Dr. Zakir Husain recognised the importance of productive work in education and insisted on its quality. According to him, "All work is not educative. It is educative only when it is preceded by mental effort. You have first to plan the work in your mind, then to think out the ways and means of doing it, then to perform it actually and finally to assess the results and compare them with the guiding plan. . . Only that work is genuinely educative which serves some higher value, higher than our selfish ends, and to which we are devoted."

We are having SUPW (Socially Useful Productive Work) in our schools as a subject now, but it is mute question before all of us whether the work being done in the name of SUPW meets these five acid tests or criteria of productive work given by Dr. Zakir Husain.

Role of Teacher

More than any other Indian educationist, leader or thinker, Dr. Zakir Husain understood the teachers of India—their roles, their weaknesses and failing, their aspirations, emotions and capacities and their historical destiny. Quite naturally, therefore, he exhorted the teachers and guided their minds and actions. Let us recall some of his most remembered statements:

> ...The frontispiece of the (good) teacher's book of life does not bear the legend *knowledge* but *love*".

> "....The growth of the morally autonomous personality is the aim and end of his endeavour."

> "....To some in history is given only to demolish, some are destined to make minor alteration, others are required to keep an edifice in good repair, it is given to you to build. . . ."

> "...I maintain that the teacher is responsible not only for himself but, in a way, for the whole of society. He is the custodian of the highest values created and cherished by his people. He is the transmitter of those values to his students, and if has not experienced them himself, has never been stirred to the depths of his being by atleast some of them, he is, I am afraid, in the wrong place."

Needless to emphasize that these valuable addresses to our teachers shall ever remain a constant source of inspiration and guidance to them.

Functions of Universities

According to Dr. Zakir Husain, the prime concerns of our universities should be:

(a) Their concern with the individual and the spirit;

(b) To mediate between the subjective mind of the educated and the objective mind concretised, crystallized, as it were, in goods of culture;

(c) To be clear as to the goods of culture with which it brings its students in contact, and in what sequence and with what intent;

(d) Their concern with intellectual work, for knowledge should be based on the principles of experience and discovery; and

(e) Their concern with individual excellence as future, long term policy in order to make an excellent society.

Educational Reconstruction in India

Dr. Zakir Husain was actively and creatively involved in the task of educational reconstruction in India throughout his long educational career. We have culled his following prescriptions for a functional reconstruction of Indian education from his various speeches and writings:

(1) Make education the instrument of essential culture through educationally productive work;

(2) Create a sense of social responsibility in all engaged in the task of education;

(3) Instead of tinkering with administrative detail or making minor changes in years, subjects or books, "a deeper and more widespread understanding of the nature of education and the functioning of the democratic society is essential. . . "

(4) "Atleast a seven year compulsory school of work organised as community. . . transformed from a place of theoretical one-sidedness to that of practical human many-sidedness, from a place of passive book learning to one of active, purposeful work. . . ., supplemented after the age of 14 by continuation in vocational institutes with compulsory part-time attendance upto the 18th year of age. . . ."

(5) The school should seek to shape the totality of the educand's being, that is, the entire Values-Aims-and-Interests system of the educand;

(6) ". .organization of our educational institutions as units of community living, as communities of work, manual and mental, and as communities of shared values and shared standards of excellence;

(7) The functions of the university should be liberally interpreted. Liberal education is the right base for efficient and socially motivated technical education; and

(8) A good school is one which:

(a) Never forgets the individual with his peculiar needs;

(b) Keeps in view the stages of development of this individual;

(c) Attempts to make an allround development of the child as its primary function;

(d) Is a place of purposeful activity of educationally productive work;

(e) Is a community in which individual accomplishment is selected to social achievement; and

(f) Initiates children into self-education.

IV

The Educational Impact of Dr. Zakir Husain

It is difficult to assess the ultimate impact of Dr. Zakir Husain's Jamia experiment and his educational ideas adequately. Some things are very clear. So far as his ideas are concerned, their wisdom, brilliance and utility have always been recognised by teachers and parents and they will always be guiding them. Our new Education Policy has come out with many proposals recently. In order to make them a practical reality, the educational ideas of Dr. Zakir Husain are bound to be found immensely useful by our teachers throughout the country, for the new Education Policy and Dr. Zakir Husain both are clearly concerned with making education a real instrument of cultural synthesis, national integration, modernization and our society's smooth transition to a glorious future.

The worth of the Utopian experiment of building Jamia with the support of dedicated workers amidst poverty and deprivations of all sorts shall always be recognised by the people of India. That was indeed a very romantic story full of great message and inspiration. The credit for it must go to Dr. Zakir Husain in a large measure. But more than that, we must appreciate the sociological impact of that utopian experiment. During the last 66 years, the Jamia might have provided education to about a million first generation learners of the families of poor and middle class

Muslims, Hindus, Sikhs and Christians coming from Indian villages, urban areas, slums, and also from foreign countries. The Jamia has indeed helped these young men and women to achieve social mobility, modernization, enlightenment and emancipation in their lives. But for the Jamia, one shudders to think, what would have these boys and girls been doing and how. Thousands of teachers in Basic schools and non-Basic schools were produced by the teachers' training wing of the Jamia during 1938-1986, and they indeed have been catalysts of educational change in the country. Hundreds of young boys and girls have become trained social workers, researchers, engineers and technicians by receiving low cost modern education in the Jamia. While the other universities in Delhi and outside have been preferring students from the elite or better-off families, the Jamia has since its inception continued to embrace the poor or weaker sections of the Muslims and Hindus and others in a very large proportion.

Let us not forget that the Jamia blazed the trail of Adult education several decades back as a pioneering institution under Zakir Husain. Also it was Jamia which started imparting education through mother tongue and produced useful literature in Urdu and Hindi languages.

Although in recent years, due to several external and internal factors much of the old spirit of the Jamia, which, Dr. Zakir Husain and his contemporaries tried their best to create, has indeed been lost and a serious void seems to have come in, which unfortunately has given rise to several sociological and academic problems in the Jamia, yet the sacrifices and educational contributions of Dr. Zakir Husain still offer light and encouragement to those of its workers who seek it. The life work of Dr. Zakir Husain presents an inspiring example before all teachers, and the worth of his educational contributions will ever increasingly be appreciated by the nation. ☐

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The Maharaja Sayajirao University of Baroda

VADODARA

NOTIFICATION No. GCU/1

Dated : 27th January, 1987

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Sr. No.	Subject	Faculty	No. of Vacancies
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3.	Chemistry	Faculty of Science	1
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5.	Zoology	—	4
6.	Geology	Faculty of Science	2
7.	Economics	Faculty of Arts	1
8.	History	Faculty of Arts	4
9.	Political Science	Faculty of Arts	2
10.	Child Development	Faculty of Home Science	1

The candidates for the above posts should be those who have appeared and declared passed in the National Education Tests held by the University Grants Commission during the year 1986 for the purpose of award of Junior Research Fellowships.

The application should be addressed to the Registrar, M.S. University of Baroda, Vadodara-390 002 alongwith a proof of his/her having passed the said test.

R.V. Kothari
REGISTRAR

The Tortoise and The Hare*

Zakir Husain

About five miles from India's capital city of Delhi, on the right bank of the river Yamuna, is a small village called Okhla. At one time anglers from Delhi made it their base. About twenty-five years ago, a band of crazy people decided to settle in this village and open a school there. We do not know what spirit possessed them but we do know that they had no money and had to live in tents on an open plot of land. Although they did not have a *paisa* in their pockets, they began to raise homes and big buildings. They did not bother to think how they would get them finished—but began sharing their half-completed homes with boarders of their school. At the time these homes had no doors; the wind blew through one and whistled its way out of the other. Nothing deterred them, however. They may have looked a timid, simple minded lot, but in fact they were a determined band of workers with only one thing on their minds—their school. The more they put their minds and bodies to the task, the more they accomplished. And soon thy had an enormous complex of buildings ready. People from distant parts of the country came to see it and took their children to study there. For some years people mocked this band of workers, often the workers laughed at themselves for having launched on so mad a venture with so little to see it through.

During the monsoon, the Yamuna often spills over its banks. As far as the eye can see, there is nothing save an expanse of water. But when the flood subsides, one can go over the bridge to a dam made of wooden planks designed to divert the water into a canal. Below this dam is a stretch of sand. Here you may meet parties of school children. You may also meet a big Tortoise. He is as large and as strong as a fortress. He puts his head out of the water, surveys the bank and if the coast is clear, will come out of the river and take a few majestic steps on the sand.

Maulvi Ghufran, a teacher from the local school, was in the habit of strolling along the river. He walked fast as he believed that this kept him slim. His eyes were usually fixed on the ground and he seldom looked up to see the beauty of the landscape, lest it divert him from his plan to make his walk a weight-reducing exercise.

The Tortoise had often seen Maulvi Ghufran pass that way. He was fascinated by Maulvi Sahib's glossy black beard, his sparkling eyes and the glow on his ruddy cheeks. Maulvi Sahib appeared to be a man of wisdom. A problem had been worrying the Tortoise for many days and it suddenly occurred to him that he should ask Maulvi Sahib about it.

So one day, the Tortoise stepped up to speak to Maulvi Sahib. Maulvi Sahib came along at his usual time. But at the last minute, the Tortoise lost nerve. The teacher passed on without noticing the Tortoise.

The Tortoise was very depressed that his own timidity had prevented him from asking a simple question. So the next day, he emerged from the stream earlier than usual to ensure that he would not miss the teacher.

Maulvi Ghufran was so punctual that you could set your clock by the time of his arrival. As usual, he was in a hurry. Before the poor Tortoise could open his mouth, the teacher was many yards away. The Tortoise mustered all his courage and called out in his hoarse voice, "Mullaji, O Mullaji!"

Maulvi Ghufran paused and looked up at the sky: he thought it was a voice from the heavens, and his heart missed a beat. Contrary to his habit, he looked all around him. But he could see no one. "It must be stand up to his old tricks," he thought to himself and continued on his way.

The Tortoise screamed with all his might, "O Mullaji, forgive me! I have a small problem and need your help." Maulvi Sahib turned round and saw the Tortoise with his massive shell of steel and horn slowly advance towards him. The poor fellow was out of breath but obviously determined to get an answer to his problem.

Maulvi Ghufran waited patiently for the Tortoise. "What do you want? Speak up," commanded the teacher.

The Tortoise came to a halt. "Mullaji *namastey!* I have a *prashna* for you. Please spare me a moment."

"Certainly! But I am getting late. Quickly say whatever you have to. But what exactly is a *prashna?* asked Maulvi Ghufran.

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*In Radhey Mohan, *ed.*
Dr. Zakir Husain As I Saw Him.
New Delhi, Indiana Publications 1974.

"A *Prashna* is something one asks," replied the Tortoise. "We all have our own language."

"I see," marked the teacher. "Well, then, what is it you want to ask me?"

"I have got a little out of breath trying to catch up with you," said the Tortoise. "If you would take a step or two towards me, it would help. It is a very important matter for me. As soon as I finished the worship of the morning sun, I came here in your *prateeksha*."

"Pray, what kind of animal or thing is *prateeksha*?" demanded the teacher.

"Mullaji, it is in your *prateeksha* that I have been squatting along your *marg*."

"In my language, *marg* means death. So you have been waiting for me to die? That's very nice of you, no doubt!" said Maulvi Sahib in a voice loaded with sarcasm. "Pandit Tortoiseji, how have I harmed you to have you impatiently await my demise?"

"I understand this word 'await'. It is the same as *prateeksha* Mullaji, it's all a trick of words. They mean the same thing."

"Oh I see!" exclaimed Maulvi Sahib. "*So prateeksha* and await mean the same thing. Why then do you await my demise so eagerly? What have I done to you, O Pandit?"

"You misunderstand me, Mullaji," protested the Tortoise. "It's all a matter of words. When I said *marg* which is the same as *path-path* is the same as. . . "

Mullaji interrupted him: "*Path* that is path that is... the way. I follow." Mullaji felt a little ashamed of his impatience and spoke more gently. "Do I understand that what you meant to say was that you were looking for me, waiting for me? You may now present your question, so that I can answer you and proceed on my way."

"Mullaji, question means and answer means. . . ."

"Brother Tortoise," remonstrated the teacher gently, "I am getting very late. If I had known earlier, I would have brought my lexicon."

"What is a lexicon?" asked the Tortoise.

"Listen, dear Tortoise, a question—or a *prashna*, as you choose to describe it—is something that is asked and an answer is something that is given. And a lexicon is something in which the meaning of words is written down."

"I understand," said the Tortoise. "Question alias *prashna* answer alias reply. These things we learnt from our forefathers who lived at a time when the Yamura flowed past Nilokheri and great Muslim saints came round before sunrise for their ablutions. Our ancestors used to listen to their conversations; some of the words they used have been handed down the generation of tortoises. So we know that meaning means meaning, lexicon means dictionary, i.e., a book which contains meanings of words. Yes, yes, now I understand."

"That is very good," agreed Maulvi Ghufran. Tomorrow when I come this way, I shall bring a dictionary, that is a lexicon. Now if you permit me. . . ."

"What is the great hurry?" protested the tortoise. "See how in this very short time so many words from our respective vocabularies have been exchanged! If we discourse more with each other, I shall surely understand the meaning of your words, as no doubt you will understand the import of mine."

"All right, Shri Tortoiseji, now let us have your question or *prashna*, as you prefer to call it."

"The *prashna* is this: what do your books of history or other books have to say about an event which took place a long time ago concerning a race between a tortoise and a hare? And if there was such a race, who do they say won it?"

Maulvi Ghufran was charmed by the simplicity of the Tortoise's vocabulary and the gentle way he lisped his words. But he was up against a problem of ancient history; besides the subject he taught was theology, which had very little to do with dogs, cats, hares or tortoises. But he was a kind, honest man. He replied:

"Pandit Tortoiseji, to tell you the truth, I do not know the answer. Only a scholar of ancient history could give you the right reply. If you like, tomorrow I shall bring along the Head of the Department of History of our university. You can ask him anything about ancient history. Now if you will permit me, I must be on my way. I am already very late."

"Certainly, Mullaji! Forgive me for detaining you. I will await your arrival tomorrow. Did I use the right word 'await'?"

"Quite correct. Whatever one understands is correct. Till tomorrow then."

For some time Pandit Tortoise Ram remained lost in thought, pondering over various problems, then slowly he turned back towards the river.

The next day, Pandit Tortoise Ram emerged from the Yamuna well before the appointed time. Maulvi Ghufran was punctual as ever. With him was Professor Kipchaq, a wiry, lean man carrying a thin, crooked cane which he restlessly twirled in his hand and occasionally kicked with his toes. He had a strange way of jerking his neck. It appeared as if he was talking to himself. Whenever he thought he had made an important point, he emphasised it by a jerk of his head. When he stood still, his fingers tapped the head of the cane as if it was the key-board of a harmonium. In short, he was a fascinating man.

This morning, Maulvi Ghufran was on the look-out for the Tortoise. As soon as he espied him, he said very loudly, "*As-salam-valai-kum*—peace be upon you."

"Greeting, Panditji!" said Professor Kipchaq,

"*Namastey!*" replied Pandit Tortoise Ram. "May you prosper. It is good to see you. My heart rejoices."

"Oho!" exclaimed Maulana Ghufran, "I forgot to bring the dictionary—or the lexicon as you call it. But we understood each other's greetings and good wishes. Now you may present your problem—I mean your *prashna*. Professor Kipchaq is a renowned authority on ancient history. He will give you the *uttar*—that is, reply to your question."

"Professor Kashyapji," said the Tortoise in his grave, gentle tone. "There is a problem which has been bothering me for many days; I put it to Mullaji yesterday but he admitted that he did not know the answer. So I put it to you. Is it true that in some historic past, there was a race between the race of tortoises and the race of hares? And if so, who was the victor and who the vanquished? Amongst us tortoise folk, it is believed that such a race did take place and that our forefather won it.

Professor Kipchaq was offended. He thought the Tortoise had mistaken him for a spinner of children's fairy tales. Or else the morning breeze had gone to the Tortoise's head and he was trying to be facetious. After a prolonged silence, the Professor replied, "Mr. Tortoise, what have I to do with tortoises and hares? I am a teacher of history."

The tortoise was taken aback; he did not have the courage to bandy words with an eminent professor. He asked Mullaji hesitantly: "Mullaji, what's happened? The Professor seems somewhat annoyed. I crave forgiveness and will not pester him with any more questions. As they say, silence is golden."

Maulvi Ghufran was a gentle, soft-spoken man. He began to feel very sorry for the Tortoise. He did not realise that on the previous evening, a young man had heckled Professor Kipchaq over some matter of ancient ritual and the Professor had been out of sorts ever since. Anyone who has had a sleepless night and is hauled out of bed early next morning for an academic confrontation is bound to be testy. Moreover, the Professor did not particularly relish the company of old people and the prospect of facing an aged Pandit, after the previous night's encounter with the young man, was more than he could stomach in one morning, Maulvi Ghurfan did his best to assuage the Professor's hurt feelings.

"My dear Professor, I am afraid you've misunderstood us," he said. "Pandit Tortoiseji has no intention whatsoever of making fun of you. If there is anyone to blame, it is I."

"I crave your pardon," said the Tortoise. "How could I ever dare to make fun of you? How rare it is for one as lowly as I to meet an eminent scholar like yourself! But this matter of the race between the hare and the tortoise has been worrying me for a very long time. I think about it when I am in the water and I think about it when I am on land. I get no peace of mind. I am so worried that I hardly sleep. This is probably due to age, no doubt, but worrying makes it worse. However, if I have been guilty of any discourtesy, I hope you will forgive me."

While Maulvi Ghufran and the Tortoise were pleading with him, Professor Kipchaq was twirling his cane. At long last, he broke his silence. "Maulvi Ghufran, I am ashamed of myself. It is this wretched insomnia that has brought me to this pass. I came specially to help Pandit Tortoiseji but the way he put his question nettled me. I have no great opinion of myself but I felt that he was denigrating the entire discipline of history by insinuating that it concerned itself with stories about dogs, cats, tortoises and hares. Regarding this matter of the famous race between the tortoise and the hare, I suggest you consult your friend the Professor of Ancient Culture, Civilisation and Literature. Now we must go back. I have lots of things to attend to."

Maulvi Ghufran smiled and said to the Tortoise, "The Professor wants to apologise, i.e., beg pardon. And he has given us sound advice; we should put your question to the Professor of Ancient Culture, Civilisation and Literature. I'll do my best to bring him with me tomorrow morning."

"Maulvi Sahib, what is this literature you speak of ?" asked the Tortoise.

"It's very hard to explain. It's something which tells in sweet words the innermost thoughts of great minds. It can be sweeter than sugarcane candy. It can be as powerful as a great river in flood. It can break hearts, shake lofty mountains. Stories written in that kind of language are handed down by word of mouth from generation to generation. The words are so cunningly strung together that they arouse our deepest emotions, make people burst into song. It reflects in its true elements, as if in a mirror. It warms the heart, instils courage, reveals all our shortcomings. And it does lots of other things for humanity. I am only a teacher of theology, so I don't know too much about it—except that all this kind of thing is called literature."

The Tortoise took this all in before he spoke. "It appears to us that the Hindi word for this thing you call literature is *sahitya*."

"That's quite right, Pandit Tortoiseji! It must be *sahitya* or what we call *adab*. Of course, this Sahitya Academi that we have is meant to propagate our literature. So that's settled, *adab* is *sahitya*, i.e., literature."

"Mullaji, be sure to bring your Pandit of Literature with you tomorrow morning. We've lost a lot of time, and I am losing more and more sleep over this vexed question. Be kind and do not fail me."

"I promise," replied Maulvi Sahib. The two men then proceeded towards the bridge.

"What a mess I've landed myself into!" muttered the Tortoise to himself. "However let's see what this *sahitya* man has to say. I put them a simple, straightforward question and they tie themselves in knots. I wonder what kind of learning these human beings go in for these days!"

Maulvi Ghufran found himself engrossed in the Tortoise's problem. As soon as he returned to the campus, instead of going for his bath and breakfast as was his wont, he made his way to the house of Dr. Philfor. The Doctor was surprised to see Maulvi Sahib so early in the day. The Doctor was given to smoking his hookah-pipe in the mornings; he believed it helped his digestion. He often dozed while smoking and had to skip his bath. He was not very keen on bathing. He was still at his pipe when Maulvi Sahib arrived. "What brings your august feet to honour the abode of this humble creature?" he asked in his usual polite but florid language. "Please enter. Welcome and welcome again. I hope you will have breakfast; then I may also partake of the repast."

"Aren't you well? Don't you eat when you are alone?" asked Maulana Ghufran.

"It's the same old complaint," replied the Doctor. It's been with me all my life. It's the mother of all diseases. Sometimes I do not go for a week. Once in seven days my bowels may move and I have a clearance."

"We can discuss the matter of diet and constipation another day," said Maulvi Ghufran turning up his nose. "Today I have to trouble you about another question. As you know, every morning I take a stroll by the river. I've made the acquaintance of a tortoise.. . ."

"A tortoise!" exclaimed the Doctor. "Did I really hear you say you've made friends with a tortoise? That's really bizarre! I commend you for the use of the word 'acquaintance'."

"Doctor, you misunderstand me. There is no need for any commendation," protested Maulvi Ghufran. "We met and we conversed. He is a kind-hearted old fellow. He is in an awful fix. He put his problem to me but I could not help him as it was not concerned with my discipline but with history. The next day, I took Professor Kipchaq with me. The poor fellow presented the same question to the Professor. But the Professor considered it a personal affront as well as an aspersion on his discipline."

"How can I help you, pray?"

"When Professor Kipchaq cooled down he suggested that as the matter concerned fables and legends, some authority on literature should be consulted. So I have come straight to you. If you will be good enough to accompany me on my morning walk tomorrow, the poor old Tortoise will surely be grateful."

"But what does he want to know?"

"In ancient times, there was apparently a race run between a tortoise and a hare. He wants to know authoritatively whether this is a legend or a fact, and if it is a fact, who won the race."

"Aha, it's the same old Aesop's fable! I shall be happy to go with you. It's good I asked you about it now. You see with all the reading I have to do, my mind gets somewhat muddled—perhaps my wretched constipation has something to do with it. I will consult my notes nearer the time; then I can answer his question fully."

Thank you, I must be off now. I'll call for you tomorrow morning."

The next morning, the Maulana said his prayers and hurried to the Doctor's quarters. The Doctor was still in bed. Maulana Ghufran rattled the chain outside the door, then called out. The Doctor rose rubbing sleep out of his eyes. He splashed water on his face and slipped his feet into a battered pair of rubber-soled shoes, relics of bygone days when he used to take a morning walk. He came out and joined the Maulana.

The Tortoise had been waiting for a long time. He walked lumberingly up to greet them. The Maulana said, "As promised, I have brought a most knowledgeable, scholar with me. He knows just about everything there is to know. You can present your problem to him."

"O revered and learned Pandit!" said the Tortoise addressing Doctor Philfor. "The *prashna* is this : I am told that your books of learning have recorded at various places that in ages gone by there was a race between a tortoise and a hare. If that is so, who do they say won the race? Tell me truthfully and precisely what was the outcome of that contest. Tell me the truth, the whole truth and nothing but the truth. Don't spare my feeling."

Doctor Philfor was Professor of Literature but the Tortoise's Hindi mode of address, "learned Pandit" and the use of the word "*prashna*" irked him. He looked questioningly towards Maulana Ghufran. The Maulana gauged his linguistic difficulties. " 'O revered Pandit' is only the Hindi form of address," he assured the Doctor. "And you must have realised that *prashna* is simply the Hindi synonym for question."

"Yes, I do comprened," replied the Doctor. Your problem is most absorbing and all its different aspects must be carefully considered. To put it briefly, tales of animals, and of animals and humans, are an old literary form popular in ancient India and Greece. We also come across this genre of writing in the literature of some other nations. But India and Greece excelled in it. In Greece, they are ascribed to one Aesyp. In India, most of them can be traced back to Buddhist times and are known as Jataka tales. They are associated with the nativity of Gautama the Buddha."

The Doctor's short dissertation had a strange effect on the Tortoise. He reverently closed his eyes as if in deep meditation. The Maulana felt that a long and learned discourse on the genesis of animal tales was not quite the thing for a tortoise. He gently reprimanded the Doctor : "We need not go to such length on the subject; just answer the Tortoise's question to his satisfaction."

Doctor Philfor replied, "If you will forgive my saying so, Maulana Sahib, I do not like to be interrupted. I have already told you that my constipation has adversely affected my memory. Accumulation of too much knowledge has also created a mental block. Different kinds of knowledge create confusion. That's why I make copious notes. I consulted them last night on this very topic. If you keep interrupting me, my mind may wander. You must take my word that all I am telling you is strictly relevant. Let me proceed with my answer to Mr. Tortoise and kindly refrain from further interruption. Yes, as I was saying. . . Now what was I saying? It's gone completely out of my head."

"Something about the Jataka tales and someone called Aesop," reminded Maulana Ghufran meekly. "But pray do not let the flood of your learning drown the question posed by this poor Tortoise."

The Doctor retorted sharply, "I am a D. Lit. I am charged with the dissemination of literature; I live by learning. If I were to tell you all I know of the genesis of folk tales or even of animal tales, you could blame me. But the truth of the matter is that in the study of literature it has now become unnecessary to devote attention not only to stories of animals but even to literary masterpieces. It is the duty of scholars to trace problem back to their very beginnings and decipher hidden meanings of value to individuals and to society. We research scholars spend our lives in this pursuit. Just as you have to know the circumstances in which a poet was reared before you can correctly interpret his poetry, so you must know the background of his society, and the stage of its historical evolution. These are rare gems which we must dive for. Nothing else seems to have any value!"

Tortoise had again shut his eyes. Maulana Ghufran spoke impatiently. "Let's forget it! Dont's tell me that in your great discipline, there is no such thing as a straight answer to a very straight and simple question!"

"And what precisely do you mean by that?"

"Only this: what is the truth regarding this business of the tortoise and the hare?"

"Maulana Sahib, listen very carefully. The truth of the matter is that in these tales, animals have been used as symbols. Virtues and vices are clothed in animal form. For example, lion for courage, wolf for greed, fox for deceit, lamb for innocence. They have a powerful impact on the undeveloped minds of children. They are put in comic situations which are particularly fascinating to the young."

"My dear Doctor, I am most impressed by your learning and diction," replied Maulvi Ghufran sarcastically, "but how long do you expect us to be lost in the maze of your knowledge and argument? Pray tell us in one single word who won the race, the tortoise or the hare?"

"Sir, there is always a tale within a tale: there is neither victor nor vanquished. As the tale is told, the hare lost and the tortoise won. But there were many pre-conditions to the race. In the course of the race, the hare fell asleep; the tortoise was on the move all the time. If the hare is the symbol of speed and the tortoise of the absence thereof, the outcome would be all too obvious. On the other hand, if the hare is used by the story-teller to symbolise over-confidence or carelessness born of hubris and the tortoise to symbolise untiring perseverance born of humility, then there is a stronger reason to accept the verdict in the tortoise's favour. It is not for me to prejudge the issue. If you are willing to hear more on the subject, I shall tell you. I am not well acquainted with the hare as a species, as I have not had the time to study all that has been published on the subject. But take the tortoise. He is closer to the peoples of the American and Asian continents. It is on the tortoise's back that we envisaged the world we live in. The Mundas worship him. Others use him for sacrifice. In Madagascar and Java, people believe that if a tortoise is forced out of water, there will be a typhoon. In the later Vedas, we find the tortoise portrayed as a god. In the *Yajurveda*, he is called Kashyapa. He has all the qualities of self-procreation, he is *swayambhu*—self-generator. It is written in the *Satpatha Brahmana* that after *Prajapati* had created all the creatures of the earth, he assumed a tortoise-like incarnation. It is probably for this reason that the Hindus have given the tortoise a place in their pantheon of gods and worship him as an incarnation of Vishnu."

Maulana Ghufran looked impatient. The Doctor raised his finger to warn him against further interruption and continued with his discourse. "You may not know that the ancient Chinese read celestial messages from the shell of the tortoise."

"Celestial messages! You mean from the heavens? God forbid!"

"That's right, they read message from the skies in the tortoise's shell. And in order to do so, they used a special variety of ink. The poor tortoise, however, had to sacrifice his life in the cause of this heavenly knowledge because he had to be deprived of his shell. As for the ink, it has a fascinating tale of its own. If you like I can tell you all about it as we walk back home."

"For God's sake, no! I have had enough of the past. And now you want to bring in this business of ink. Instead of a straight answer to a straight question, you've ensnared us in a cat's cradle. I am so sick of all this, I could throw up like one stricken with cholera. Normally I have loose bowels but today you have constipated me with information."

Dr. Philfor ignored the Maulana's tirade. "What was I saying? Tell me quick—or I'll lose the trend of my thought."

Maulana Ghufran gave up. "You were saying something about Chinese ink. I don't recall what bearing all this has on the tortoise and the hare."

"Again that hare! I have already told you that I have not studied the hare adequately. But by now you should have guessed how much I know of the tortoise. The Chinese poured a kind of ink on the inside of the tortoise's shell to read the future. In short, Maulana Sahib, this tortoise is a strange creature."

"For God's sake, spare us," pleaded Maulana Ghufran. "Forgive the poor old Tortoise and your humble servant; we erred grievously in troubling you. Please, please forgive us."

"There is no reason to be upset," assured Doctor Philfor. "You honoured a humble scholar such as I by consulting me on this important problem. I have told you all I know."

"Just a minute," he cautioned after a pause, "I overlooked mentioning one fact. You used the words 'poor' and 'old' for your friend the tortoise. How long do you think tortoises live? Between three and four hundred years: Your friend is still young: he has at least another 150 to 200 years to go. Tortoises live a long, long. . . ."

"Enough is enough!" snapped Maulana Ghufran. "Let's not start on the age of tortoises."

"If you are not prepared to listen to me, I will leave at once," exclaimed Dr. Philfor, walking away. The Tortoise, who had been lost in his own thoughts while this discourse and argument was being bandied, had now fallen asleep. The sudden silence roused him. It often happens that one sleeps through noise and is woken by its cessation.

"Mullaji, has he left? I just dozed off for a moment. Please forgive me," he said on awaking. "Please get me out of this predicament. I have already given you enough trouble; and you have been good enough to bring Professor Sahib and Doctor Sahib to me. But it seems to me that they did not understand my problem. Or may be I did not comprehend what they were saying."

"Brother Tortoise Ramji, that's exactly what's bothering me!" exclaimed Maulana Ghufran. "When the Doctor was orating on all manner of things, I was wondering how what he was saying could possibly solve your problem. I realise that people who read too many books get entombed under their tomes and volumes of information and lose the faculty of reasoning. I must find some one who can use his own brain and answer your question, I mean your *prashna*."

"Yes, please Mullaji, as soon as you can. *Ishwara* will bless you. I have taken you into my heart."

"Tomorrow I will bring another of my colleagues. He is the Professor of Philosophy. Thought and reason is his business."

The real name of the Professor in question was Allah Ditta—the gift of Allah. He was from Punjab but had been educated in Jaunpur and Lucknow. Living in these parts, he became uneasy with his Punjabi name, and changed it to Maula Baksh—which means the same thing—the gift of the Master. Before he came to Maulana Ghufran's school, he used to sell biscuits and rent out furniture. He made the biscuits himself. He never wrote down what was due to him but made a mental note of it. Whenever a student leaving college owed him money, he immediately impounded all his furniture to recoup himself. When Maula Baksh first came to the institution, he asked the Principal that his name be entered in the record as 'Al Phailsuph al Hindi." He had that name printed on his calling cards. From that day, he was "Al Phailsuph al Hindi." Only a few people knew of his having been Allah Ditta and Maula Baksh.

Doctor Philfor's lengthy discourse had delayed Maulana Ghufran. He had a lot to do at school and at home. It was only in the evening that he was able to go to Al Phailsuph al Hindi, and tell him all that had passed between him and the Tortoise—and between them and Professor Kipchaq and Doctor Philfor. He expressed his deep regard for the Tortoise and begged Al Phailsuph al Hindi to help the Tortoise out of his predicament.

Al Phailsuph listened with rapt attention before he replied, "Let me make it quite clear—I have nothing whatsoever to do with tales and legends or literature of any kind. This is the age of reason and I believe in keeping my mind clear of cobwebs. I will find the answer with my own innate faculty of reasoning and if I can prove by that power of logic that it is probable or possible for the tortoise to have won the race, I will convey the good tidings to your friend. You can never reply on legend. First let me get the problem clear, if there is a race between a tortoise and a hare, which of them will win? If I am given no further information and have to deal solely with the question, then I can say that either could win. Let us assume that a hare is a fast runner and a tortoise slow on its feet. Nevertheless if this assumption is based only on observation and probability, we cannot base any firm, infallible conclusions on that probability. Our observations often lie; they deceive us every day—morning and evening. A mirage makes sand dunes appear like a stretch of water, the sun appears circling round the earth. Maulana Ghufran, I promise to think over this problem at night. I will accompany you in the morning and make acquaintance with your friend, the Tortoise."

* * * *

Early next morning, Maulana Ghufran went to Al Phailsuph al Hindi's house and the two proceeded to the river. The Tortoise awaited them. He greeted them with a broad smile. "Welcome Mullaji, and to you. revered Sir I also extend my welcome."

"This is my friend, Al Phailsuph al Hindi," said

Maulana Ghufran introducing the two. "I have told him about the *prashna* that has been torturing your mind. He has thought about it and will tell you all there is to know."

"I touch your feet," said the Tortoise bowing towards Al Phailsuph al Hindi. "There is not very much to my *prashna*. Just tell me who won—the tortoise or the hare? If you can tell me for certain that the tortoise won, I will take on a hare tomorrow."

"Mister Tortoise, you are a friend of my friend Maulvi Ghufran who has told me of your problem," replied Al Phailsuph al Hindi. "But I am afraid I cannot tell you who won. I was not present at the race. And even if I had been there watching it, how could I state with any measure of certainty that what I had seen with my eyes was right? Eyes can deceive. I suggest that you keep the outcome of the race out of the debate. As far as I am concerned, the result is of no consequence. The crux of the matter can be put thus; if you and the hare were to run against each other, who would be the winner? Not who won but who will win. There can be three possible alternatives: first, the hare is faster on its legs than you and you run at your usual pace. In that case, you will lose and the hare win."

The Tortoise took a deep breath. His eyes became moist. "So all that I have been told is a lie. It's the hare who will win."

"Don't be impatient, Mister Tortoise," exclaimed Al Phailsuph al Hindi. "I have only stated the first proposition. It is subject to many provisos."

"Surely this is the bitter truth! My defeat is ensured."

"No, Sir, be patient. The second alternative is that we assume that you walk faster than the hare and you both start the race simultaneously. In that event, you will win."

"Mullaji," pleaded the Tortoise, turning to Maulana Ghufran, "is he making fun of me? If I could fulfil this condition, why should I have bothered to ask you this question?"

"No, Mister Tortoise, there is yet another alternative," said Al Phailsuph al Hindi. "The hare runs fast and you jog along lazily, but you keep on moving. The hare stops on his way to take a nap. And if he does not get up in time to resume the race, then, despite your slow pace, you will win."

The tortoise turned to Maulana Ghufran appealingly. "Mullaji, why on earth should he take a nap? Who is there to lull him to sleep?"

Maulana Ghufran asked Al Phailsuph al Hindi, "Can't you pose some assumption by which our notions of the relative speeds of the hare and the tortoise be such as to ensure the tortoise's victory?"

"You have not yet heard all I have to say. Besides I have not acquired my mastery of logic in vain. Do you think I am unable to posit an assumption that will ensure victory for the Tortoise?"

The Tortoise began to look more cheerful. "Please revered Sir enlighten me further."

Al Phailsuph al Hindi continued his discourse. "Let us assume—as you would have us assumed—and there is no reason to assume that a hare must always be quick-footed. But for the sake of argument, let's admit that such is the case. Now I put it to you, this race that you talk about, will it take place on dry land or under water?"

Maulana Ghufran interrupted him. "Sir, you present us with some premise by which although the race were run on dry land and although we are correct in our surmise that the hare is fast and the tortoise slow, the issue would be decided in favour of the tortoise."

"There is one such premise. But you must understand the conditions that are attached to the premise. These are as follows:

> The direction of the race must be clearly stated.
>
> Both the tortoise and the hare must run according to their respective speeds without any stops whatsoever.
>
> And above all, at the outset of the race, the tortoise must get a short start, even if it is as little as one yard.

"And now listen very attentively and try to comprehend what I say. Imagine there are two bodies or things—A and B, both in one straight line. One in front, the other behind. The distance between them is D. A and B move ahead according to their respective speeds. Now it is clear that whatever the speed at which the body B travels, slow or fast, as long as it sticks to its predetermined path, must cover a certain distance, however great or small."

"But pray enlighten us, what relevance has all this to the tortoise and the hare?"

"I have explained it already. If we take B to be the tortoise and keep it continuously moving forward, then between it and the other body A, *i.e.* the hare, there will always be a certain distance, A, *i.e.* the hare, will never be able to catch up with B, *i.e.* the tortoise. Consequently, B must be the winner."

Maulana Ghufran gasped helplessly at Al Phailsuph al Hindi. Signs of pleasure were apparent on the Tortoise's face. He spoke with some diffidence; "Mullaji, I have not understood every thing our revered friend has said, but it would appear that victory would surely be ours. Now would it affect his argument if he were only to state explicitly that the tortoise will win?"

Al Phailsuph al Hindi smiled, to exhibit any more pleasure was against the dignity of his discipline. "I have made everything crystal clear. And still you request me to expound the matter fully. Mullaji, if you wish to put the hare in A's place, you may do so. And the tortoise at B. The distance between them--a yard or so—be D. Let the race begin. If Mister Tortoise continues to run at his usual pace without stopping anywhere or falling asleep, he will win. This, my power of reasoning says, is inevitable. There is no room for faulty observation nor the uncertainty of conjecture in this proposition."

"Do you understand this, Pandit Tortoise Ram?" asked Maulana Ghufran. "Hurl your challenge. But don't forget that at the commencement of the race, you must be one yard ahead of the hare. He will never be able to go past. Our friend Al Phailsuph al Hindi is a man of great foresight; we cannot be accepted to see that far."

"Mullaji, you ask him to say just once that we tortoises will win," pleaded the Tortoise.

"Now look, Pandit Tortoise Ram," the Philosopher said, "I do not have any truck with fantasies. Why should so-and-so or so-and-so be asked to say so-and-so? How do I know whether it is the hare or the tortoise that will win? If the race is run according to the plan that I have outlined before you, then B will win. If Mullaji choose to make you B and you are brave enough to accept his choice, the pre-conditions I have laid down will be fulfilled, and the victory will be yours. But if these pre-conditions are not fulfilled, then the whole things fall to the ground. That would be the end of the episode of the hare and the tortoise. A completely new plan would have to be devised."

"Have we erred in any way that you should in a trice reduce all our hopes to ashes?" pleaded the Tortoise, turning to Maulvi Ghufran. "I do not understand all his words but from his use of the phrase 'end of the episode, "I gather he means reducing all our hopes to ashes, Tortoise into ashes."

"No Pandit Tortoisеji, that's not what he means at all," said Maulvi Ghufran, only the pressure of your *prashna* has been too much for his brain. But he has made it all very clear. If you do as we have told you, you will certainly be the winner. Only don't forget to start a yard or two ahead of the hare."

"If he forgets that pre-condition, the whole plan falls to pieces. If the pre-condition is not there, there is no pre-condition victor. Now if you will allow me, I must leave; you can continue your dialogue. I've worked up a headache. I must return home and take my brain tonic. Well, peace be upon you and may God protect you!"

"All right, you may go," replied Maulana Ghufran. "We'll be seeing each other soon. Many thanks. You've done us a very great service. You will agree, brother Tortoise, what a wonderful answer our Al Phailsuph al Hindi has given to your *prashna*! He blocked every avenue of escape that your *prashna* could have had. I shall also be on my way. You should be rid of all your worries on the subject. If the hare is all uppish and challenges you, don't hesitate to take up the gauntlet. Only remember the condition of starting ahead of him. You will win. You can be sure that you will win!"

Maulana Ghufran retraced his steps in a lighthearted sprightly way. He had his bath and breakfast of tea and biscuits made in the Aligarh style by the local baker, Maula Baksh. Then he left for the classroom.

After the lesson, Maulana Ghufran had to announce the results of the annual examination. He had given one of his students 55 marks out of 50. The Principal was present at the time he was making the announcement. He did not say anything before the students but as soon as Maulana Ghufran came out of the classroom, he asked, "How did you manage to extract 55 out of 50?"

"I did not extract anything out of anything," replied Maulana Ghufran. "As far as I am concerned, I only gave 55 marks."

"But, but," protested the Principal, "the total was only 50."

"That's right. But what was I to do? When I read through Jamil's answerbook, he had all the answers correct. So I gave him 50. Then when I saw Safi's book, he also had all the answers right. However, his writing was much better than Jamil's and his approach to the problems was also superior. My only choice was to give Safi 50 and reduce Jamil's marks or give Safi some more. I felt that the first alternative would be unfair. Hence the second."

While these two were arguing, Al Phailsuph al Hindi happened to pass by. The Principal spoke to him, "Mr. Philosopher, please listen to this! Maulana Ghufran has given one of his students 55 marks out of 50. What do you say to that?"

"What can I say to that? If he has given the fellow 55, I presume that's what the fellow deserves."

"O learned one, how can anyone give more than the total? All he had to give away was 50; he's given 55. How is that possible?"

"It's possible for the simple reason that he has done so. What more proof of possibility is needed, seeing that thing has been accomplished? No one can extract a guava from a mango. He extracted nothing from his 50. He used his judgment to give the boy 55 marks. If he had wanted to, he could have given the chap 60 or 70 or more. The question of possibility is quite irrelevant to the issue."

"Forgive me, O learned one! And you too Maulana Ghufran, forgive me! Whatever you did must be right. I shall get back to my office to compile the final results."

The final results were compiled and declared. The school closed for its long vacations. Maulana Ghufran and the other teachers left for their homes.

* * *

Meanwhile the Tortoise began to train for the big race. He was waiting for the Hare to come and make some sarcastic remark or tease him and then he would throw him a challenge. Many days later, the Hare happened to come along. There were always people by the river bank, so the Hare had to be cautious. Not far from the bank, there was a field of chick-peas. It was on this field that the Hare was wont to enjoy his meal of chick-pea leaf-mash. The Tortoise wanted him by the stream. Hence the delay in their meeting.

Once the vacations had begun, there were no people along the bank. A few days later, the Hare saw that all was clear and approached the Tortoise. "Old man, how is your toothless mouth working? What's on your mind? Let's have a game of something." The Hare frisked around and raised aloft his large ears to listen. He repeated the performance many times before the Tortoise suspected that he was trying to make fun of him.

"Prince, you are very frisky today," remarked the Tortoise. "You have no respect for your elders. When will you learn some manners?"

"Old fellow, all this swimming about in the river has filled your brain with water," replied the Hare very curtly, "that's what makes you so edgy in your speech."

"It's you who assume princely airs and talk big," retorted the Tortoise. "I live according to my principles. I have learnt good manners from my ancestors. I'd advise you to take some lessons in etiquette."

'So! You call me ill-mannered. It's you who are an ill-mannered lout. I'll teach you to hold your tongue."

"In the holy name of Rama!" exclaimed the Tortoise. "You are quick-tempered, aren't you, Mister Prince? It seems that all this green folliage you've been nibbling has created a lot of gas in your little tummy. You forget your real nature."

"Gas in your belly, Old Wind-bag! You are as inflated as a gas balloon. Balloons are always very light in the head, but you are a balloon made of solid rock. Fancy carting a castle on one's back! And just watch the ambling gait of this flat-footed rocky balloon!"

"You have always something nasty to say about the way I walk. I walk like a weighty person! Men of substance always walk the way I do. Your's the way of the scamp. A leap here, a leap there. Slinking, hiding, ears dancing up and down. Wah! What a royal gait has our beautiful princeling!"

"Okay, let's have it out. Good is that which is faster. Take me on fatso? Maybe you get winded just standing erect!"

"Race me! That's all you can think of. All right. I'll run against you. Our ancestors had such a race in times gone by. Our ancient history and literature record what transpired. Do you know what was the outcome? Your great, great, great grandfather was trounced by my sire. Mister Prince, does your memory go as far back as the days of spring?"

"Stuff and nonsense! Some foolish tale penned by an asinine pen-pusher. If these scribblers did not mix lies with what they wrote, who would read them? Falsehood makes delectable sauce for a stale story. Old fellow, life is not a tale told by an idiot. Life requires a sturdy body, strong, agile limbs, nimble feet. If you dare to run against me, you will learn better.

"As you say, Prince! Let's settle it once for all. I'll run against you. If you lose, let not your tongue wag any more. And learn to be civil in your speech."

"When will it be? Why not straightaway? Now!"

"What's the great hurry? I have some things to attend to in the river. Come tomorrow morning."

"Sure! I take it you will be alone. Not all those new friends of yours—the one with the black beared, the one with the cane and that fellow with sparkling eyes. I avoid that type; I give them a wide berth. A deceitful, cruel, bloodthirsty lot they are."

"In the holy name of Rama! Do you ever have anything nice to say about anyone? Chick-pea leaf-mash is good, all the rest is evil. Well, it's your business. You come tomorrow and I'll see that there is no one else here—just you and I and God. We'll run our race. I put my honour in the hands of *Ishwara*."

"Old fellow, you talk as if *Ishwara* was some kind of relative of yours. Your honour is in His hands and He will ignore me! However, let it be between you and your private God. All I want to make sure is that you will not back out of the race."

"We'll run from the base of this thorny acacia tree up to the other corner of the bridge younder. I have only one condition."

"What is that?"

"I must start two yards ahead of you."

"Why".

"Because you are young and I am old. I am told that this is customary in all races. Do you accept this condition?"

"I accept. Instead of two, I will let you start three yards ahead of me."

The Hare scampered away, leaping in the air as he went. The Tortoise entered the stream and swam out of view. He was elated that the matter would be settled; he also felt a little exercise would limber him up. He felt as light as a flower petal floating on water. He was supremely happy.

Next morning, the Hare took a repast of the tender leaves of chick-peas before he came to his rendezvous. The Tortoise had already taken his place about 2½ yards in front of the base of the thorny acacia.

"*Namastey*, Prince," greeted the Tortoise.

"*Namastey*, Old Chap," replied the Hare with his usual impudence.

The Tortoise ignored the ill-mannered response. "I have taken my place. You go to the base of the thorny acacia and we can start off."

"When"?

"When I give the signal".

"Okay."

The two took their appointed places. The Tortoise bided his time. The Hare was full of high-stung impatience. One minute. Then he hopped up to the Tortoise.

The Tortoise screamed, "I have not given the signal. Are you determined to cheat? We have agreed that we will take the first step at the same time and it is I who will give that sign. Go back to your place".

The hare went back and awaited the signal "Go". At long last, the Tortoise said "Go". The Hare took a few leaps and bounded ahead.

The Tortoise broke into his gentle trot. It was hard to tell when he was moving and when stationary; only that he was breathless and out of countenance. In a trice the Hare was nearing the corner of the bridge. The poor Tortoise saw this through his rheumy, tearful eyes.

Very suddenly, the Hare turned sharply from his course. The Tortoise screamed, "You are cheating! Keep on the straight line or I will stop at once and call off the race."

The Tortoise's toothless, winded scream made no sense to the Hare who was well out of earshot. The Hare had another reason to ignore the Tortoise. He espied a hunter's dog coming over the bridge. All save his life-force now descended to his feet. To save his soul he made a zigzag course and then crouched near the root of a tree. The dog followed the scent and got the tree. The Hare leapt like a dear. So did the dog and caught the Hare in mid-air. It tossed the Hare another yard like a piece of rag and again closed its jaws on him before dropping him on the ground. The Hare had a little life left in him. He tried to get away but the dog mauled him to death.

The Tortoise saw the tragedy with his own eyes. A strange silence descended on him. He could not believe that in the agony of defeat the Hare should have given up his life. For a long time he retired into his cell and sat absolutely still. When he opened his eyes it was on an empty, lonely world. When he closed his eyes he had the same vision—the dog mauling the Hare—and he would open his eyes again on an emptier, lonelier world. After a long while, he proceeded slowly towards the river. You know when a tortoise walks slowly, how slow it can be! However it matters little how slow the pace, he gets to his destination. The Tortoise went into the stream and looked towards the bridge. Tears came into his eyes. He said to himself: "What a tragedy! What possessed me to induce this gay and youthful fellow to an unequal combat! Shame on my great age and my experience that I was so easily nettled and nurtured so much anger in my heart! I have stained my soul with this foul act. This comes from associating with foolish people. I let my wisdom be sullied by childish, irresponsible advice. What did it really matter to me if the Hare was full of adolescent bragging? He did me no harm. It was not becoming to my age to bandy words with a stripling. I have lived for many ages; he was only a milk-sop. He is dead and I shall go on living. It were better that something happened to me and I were not tortured by these thoughts. I am amazed that with all the years of experience behind me, I did not understand that every creature lives in a world of its own. The tortoise's world is not the same as the hare's. What is important to one may be of no significance to the other. I cannot run on land, that poor doomed child could not move in water. Some have been endowed with one kind of faculty, others with another. Each one fulfils the destiny ascribed to him by God. It is our duty to try to know God's design, assimilate it and bow before it. That is the essence of religion. That is the truth. Therein lie joy and salvation. The way this knowledge is attained and the manner in which one bows before His will is different with different creatures. To measure one's own knowledge against another's, to confront one's own method of prayer against another's, to weigh one's own deeds against another's—all this is the way of error. It is a sin and I am guilty of that great sin."

Days come and days go. Life goes on. But the weight on the Tortoise's back does not lessen. He often broods: "This Maulana Ghufran never comes this way. If he did, I could pour out to him the sorrow in my heart. They say that by talking of your sorrows you can ease your burden. But I do not think anything will lighten the burden of sorrow that I bear." □

Sri Sathya Sai Institute of Higher Learning

Vidya Giri, Prasanthinilayam 515 134 (A.P.)

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Applications for admission to B.A., B.Sc., B. Com., M.A., M.Sc., M. Com., M.B.A. and B.Ed. courses commencing from June 1987, will be available from the Office of the Registrar, between **15-2-1987** and **25-3-1987**. Candidates applying for B.A., B.Sc., B. Com. courses should have completed before **May 1987**, 12 years of schooling with minimum 50% marks. Candidates applying for Post-graduate courses including M.B.A. and B.Ed. should have secured minimum 50 per cent marks in the subject and General English and also completed before May 1987, 10+2+3 pattern or considered equivalent by the Institute. Interested candidates may apply requesting for Information Handbook and Application Forms alongwith I.P.O. or Bank Draft for Rs. 35/- in case of candidates for M.B.A. and B.Ed. and Rs. 25/- for all other courses, drawn in favour of "SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING, PRASANTHINILAYAM". All details regarding courses, dates of admission tests and interview, etc. will be available in the Handbook.

REGISTRAR

IDEAS IN HISTORY—III

B. Sheik Ali*

1

With the advent of the Europeans in India, historical thought underwent a sea-change, not merely in approach, treatment and technique but also in the enormity of historical production. Perhaps no other country is so rich in historical material as India from 1757 to 1947. An overseas commercial Company gaining political supremacy was anxious not only to retain power, but also to expand it. Consequently the subtle methods it adopted offer rich historical thought. Every policy was put down on paper, every opinion expressed in minutes, and every business transacted in despatches all of which have given us an insight into the entire psychology of the policy makers. Moreover, the establishment of British power witnessed great changes in several sectors of life. The socio-religious changes of the nineteenth century, the new ways of thinking and criticism, the promotion of science and arts, the introduction of large scale trade and industry, the quick means of transport and communication, and radical changes in legal, social, political and administrative set up generated unique ideas in India. As a counter to this, how the British built up their power, how they killed Indian economy, how they damaged arts and crafts, how they disturbed social balance, exploited the resources of the land, and reduced the majority to poverty and destitution, set ablaze a new process of thinking in Indian mind, which led to national consciousness. This was a period of continuous warfare first for the Company's survival and then for supremacy and expansion. The attempt of the imperialists to use India as a pawn in their game of power-politics further excited the nationalists, who responded in a mighty way. It resulted in the Indian National Congress, in the establishment of which historical thought did have a share.

By the time the English came to India they had already formulated their historical ideas in the post Renaissance and enlightenment era. India offered them a rich field for the further growth of those ideas, and they went on here both making history and writing history. The soldier, the administrator, the scholar and even the merchant who came to India was saturated with historical notions. Broadly speaking they divided themselves into two schools of thought, the liberal and the conservative. Both schools agreed on the necessity to retain British power in India, but differed only in the art of Government in India. James Mill applied the utilitarian doctrines to India, and said that only enlightened despotism could reform the social weakness in Indian society. The second school of thought headed by Sir William Jones, Wilkins, Munro, Malcolm and Elphinston took a more favourable view of Indian society, and desired to effect changes with a sympathetic understanding of Indian institutions. A few other thoughts also emerged. Evangelicals like Shore and Grant backed by the missionaries wanted to bring about a change through conversion and education. Scholars like Lyall, Maine and Hunter took a philosophical view of the situation, and analysed the British rule in the light of the interaction of the Western and the Eastern forces. Historians of the order of P.E. Roberts, T.G.P. Spear, C.H. Phillips, Holden Furber and Professor Ballhachet adopted Ranke's method of writing history through a careful and critical study of the sources.

When the British historians were wrestling with ideas to prove their point, the Indian's were at first bewildered at the onslaught of the political and military offensive as also of the intellectual fervour. For more than a century the Indians watched the game as passive spectators, but almost fired by imagination, as a result of the renaissance inaugurated by Raja Ram Mohan Roy, they competed with Western scholars to refute many of the theories which were regarded as unacceptable. The introduction of western education and the flow of western ideas excited among Indians' keen interest in history which struck deep roots in the country, and produced far-reaching results in the political, cultural and social arena. The Indian response was at first defensive to the charges of the western scholars who carried on a bitter attack on Indian culture and way of life. James Mill, Elliot, Dowson, Maine, Stephen, Wheeler were very vehement in their polemics. Not having any historical tradition of their own to match the western techniques, the Indians were at first defensive, but soon realised that the best way to defend was to attack. Their response was in two ways. First, they plunged themselves to know well their own past, which resulted in the hunting for the sources, ransacking the repositories; learning of Pali, Prakrit and Sanskrit, and understanding the essence of the western historical thought. Secondly, armed with the new technique they proceeded to blast the western attack. They asserted that the true history of India

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*Vice-Chancellor, Goa University, Panjim, Goa - 403 005.

during the British period did not consist in the activities of the East India Company or the British Crown, but in the activities of India's own people. They formulated their own ideas on history, which stated that the real significance of history lies in the transformation of Indian society through the exertions of its own people.

The excitement of historical consciousness among the Indians led to some important results. It opened the vast vistas of India's hoary past with limitless variety and profundity of thought, which intoxicated the Indian mind with national pride and fervour. It dragged them into an argumentative and challenging mood with the western critics. It served as an instrument for social reforms; a political device in the hands of the nationalists, an unifying force in the hands of some, and a divisive element in the hands of others. From the beginning Indological studies were regarded as a very powerful medium to assist the national cause. History was increasingly pressed into service for political purposes. Swami Dayanand Saraswathi, Swami Vivekananda, V.D. Savarkar, Mrs. Annie Besant, and a host of others felt that the moral, material and spiritual development of India in the past was higher than that of the contemporary West. K.P. Jayaswal thought that long before Europe built up democratic and self-governing institutions; India had known them and had practised them. He went to the extent of saying that the republican tribes in India knew parliamentary system, that the voting of grants was in vogue and that the king delivered the address from the throne to the assemblies. To refute the western argument that India was a conglomeration of diverse creeds and conflicting interests, R.K. Mookerji wrote, THE FUNDAMENTAL UNITY OF INDIA; in which was brought out the real unity amidst diversity. A HISTORY OF INDIAN SHIPPING AND MARITIME ACTIVITY by the same author was intended to prove Indian interest in all walks of life. Rajnarayan Bose, Bhudev Mukherji, Chandranath Basu, Bankim Chandra Chatterji and others felt that Indians would remain unrivalled in the realm of thought. India's greatness was shown even in science and technology, guns and artillery and even aeroplane in the Epic Age. The supporting evidence for this was no other than Hanuman's trip to Sri Lanka.

Although to fight for the righteous cause of freedom the use of history was understandable, its departure from balanced judgment and correct perspective led to certain harmful results. Unfortunately the wrong use of history at least in one area proved disastrous in the long run. Distortions of historical facts to refute the polemics of the West was different from giving a communal colour to our own history. The part played by the Turks, Afghans, Persians and the Mughals became a subject of "inspired accounts of the long-drawn struggles between the Rajputs and Muslims; in which the Rajputs almost always came out with flying colours. Every Rajput became a hero and his rival was depicted as a devil". Latest researches reveal how subjective were the Western scholars of the type of Elliot, Dowson, Wilks, Wheeler, Lane-Poole and Vincent Smith, particularly in respect of the Muslim rule in India, and unfortunately our own brethren also fell into their trap. History became the wholesale shop to supply ideas to such retailers as dramatists, novelists, and poets who magnified the theme to create a situation when two brothers ran at the throat of each other.

This is not to say that the Muslims were not guilty. They would hardly resist the temptation to retaliate, and being less sober became more virulent. History became a battlefield where both Hindus and Muslims, fought to establish the superiority of their own culture, ignoring the areas of their common interest. Historical consciousness was misused to harm each other. Rana Pratap, Shivaji and Ranjit Singh were heroes to some, Mahmud of Ghazni, Firoze and Aurangzeb, to others. In Prussia, history under Hegel and Ranke had unified a divided country. in India history proved a source to divide a united country. History, if well-used is a blessing, if mis-used, spells disaster.

Historical ideas in India in the first half of 20th century bear analogy to the European thought of the Romanticists' era, when emotions and sentiments played the vital role, and history was written not on the basis of reason but of instinct. It became a pistol in a child's hand, who did not know when to use it, and against whom. Coulonge was forgotten that patriotism was a virtue, but history was a science, and that the two should not be confounded. Objectivity suffered enormously. British achievements were down-graded. Clive's victory at Panipat was attributed to treachery, Sikh defeat to bribery and Maratha collapse to internal dissensions. One has to remember that history is not so simplistic as to explain an entire phenomenon through a single factor, nor is it to be explained with a particular motive. Research was directed by the nationalists to find out the pitfalls of the British such as economic exploitation, impoverishment of India, neglect of Indian trade and industry, top heavy centralisation, enormous exprenditure on the army, military exploits outside the country, and numerous other errors of omission and commission, but no mention was made to give them credit for the political unification of the land; uniformity of administration, introduction of western science, arts and technology, opening of the country through roads, canals and railways, adopting a rational famine policy, introducing local self-government or maintaining communal harmony and peace throughout the land. A fair historian should censure for the wrong but give credit for the good. What happened in India was that in the court of events history was not seen seated on the judge's chair, but was lost in the advocate's gallery.

Such of those nationalists who realised the harmful effects of alienating the Muslims from the national cause attempted to bring about Hindu-Muslim unity through an over-zealous effort of minimising the differences and magnifying the areas of agreement. Here the British became the scapegoat and the villain of the piece. The entire history of Muslim rule in India was shown as a period when there was no Hindu-Muslim problem. The point to note is that historians were divided into different camps or schools of thought. There was the extremist school of Rajanarain Bose, Chandranath Basu, A.C. Das, K.P. Jayaswal, V.D. Savarkar and others who asserted Hindu superiority over others. The second represented the nationalist school of Major D. Basu, A.C. Majumdar, C.Y. Chintamani and Surendranath Banerjee, who exposed the economic exploitation of India by the British. It should also be said to the credit of Indian scholarship that there was a Ranke type of history as well which was represented by such scholars as Jadunath Sarkar, R.G. Bhandarkar, Rayachaudhri, Shafat Ahmed Khan and others.

II

Historical ideas as gleaned in the pages of Western scholars on India present bewildering variety. James Mill belongs to a dominant school of thought who exercised a powerful influence on the writing of history in the subsequent period. A utilitarian philosopher who used history for his pet theory of pragmatic approach, he condemned both Hindus and Muslims, not to glorify the British, but to indicate the primary responsibility of the Government which was to improve the conditions of the people. Sir William Jones, Charles Wilkins, Colebroke and Princep were orientalists who thought that the Hindus had reached a high degree of civilization. Elphinstone also took a more favourable view of Indian society. He created an atmosphere for history-writing in India, when Grant Duff completed his HISTORY OF THE MAHARATTAS and James Todd, his THE ANNALS AND ANTIQUITIES OF RAJASTHAN, which stirred the imagination of the people.

Apart from the liberal, conservative and utilitarian schools of thought, there was the edificatory character of the British rule. W.W. Hunter was the high priest whose HISTORY OF BRITISH INDIA, IMPERIAL GAZETTER OF INDIA and RULERS OF INDIA series set the fashion. Vincent Smith carried things to the extreme, who would see in Akbar only "a monstrous growth of unrestrained autocracy". Smith shuddered to imagine what India, "would be again if the hands of the benevolent despotism, which now holds her in its iron grasp, should be withdrawn". It is a pity that Smith was not alive to see the day when India became the architect of the Commonwealth and presented to the British Crown its brightest jewel. Moreland set the pace for economic history of India, and analysed the revenue and agrarian system during the Muslim period. He was also the first to indicate the primacy of economics in human life, and suggested for India controlled economy where the State could regulate all production, consumption and distribution. He judged the prosperity of a country by two factors. One is whether any encouragement for production exists or not, and the other, whether equitable distribution of wealth is possible in that society or not. He acknowledged that India of Akbar's times was more advanced than Western Europe.

One more significant feature of Western historiography in the realm of ideas is the philosophic trend, by which certain historians attempted to examine Indian issues in the light of current European thought. These historians, such as Henry Maine, James F. Stephen and Alfred Lyall, who carried from India finest element of Indian intellectual life of the past interacted with the political philosophy of the times of Europe, and tried to offer solutions to political issues, which were causing increasing tension. They belonged to a genuine liberal group of intellectuals, who believed that the rise of British power in India was the result of sudden accidental factors and not of fraud, greed or aggression. Their main aim was to suggest that the British rule was to be viewed as the fruit of logical and historical causes, that Sanskrit was a member of the Aryan family of languages, that the village community in India was a legacy of the Aryan institution, that India was a repository of ancient languages, usages and philosophy, and that India could be of great help in understanding Europe of the distant past. These thinkers were trying to show that both the English and the Indians had a common parentage, that they belonged to the same Aryan stock, and that they were bound by a spiritual relationship, which was centuries old, unlike the political relationship of the recent times. They further though that in the race for progress, India ceased subsequently to keep pace, and that the Europeans first through the Greeks, then the Romans, the Germans, the French and finally the English maintained a steady progress. The English were in India, argued the philosopher historians, to pass on the benefits of this progress. "We did not create it.

We deserve no special credit for it..... But we have received it, and as we have received it so we shall pass it on".

In their analysis of this historicism, they put a question why the Aryans in India did not excite the concept of nationalism in the East, whereas they did it in the West. They answered that the caste rigidities in India stood in the way. Hunter in his ANNALS OF RURAL BENGAL brought out the theory that the Brahmanical class threw all manual labour on to the lowest caste and itself became so weak as to permit more vigorous people to invade and dominate over them. Wheeler said that India failed to develop national sentiments because of the tyranny of Brahminical priesthood which destroyed political loyalties, promoted religious hold, and facilitated foreign attack.

Alfred Lyall's analysis as to why India succumbed to frequent foreign attacks was not so much the disunity that prevailed at the time but the failure to develop any other form of Government except despotism. Whereas Greece experimented with such forms of Governments as monarchy, aristocracy, oligarchy, plutocracy, democracy, tyranny and dictatorship, India knew no other form of Government than monarchy. All Governments in India tended to be unwieldy, top-heavy, over-centralized and dependent upon the military leader. With his fall, the whole structure would come down. The State did not establish a powerful eclesiastical order which could be a balancing force. Whereas Rome had crushed all primitive religions in Europe in the interest of Christianity, and Islam had done that in the Middle East in the interest of Islam, no such attempt was made even when the Muslims gained political ascendency in India. Finally, Lyall explained that the British conquest of India lay in the logic of history, for ever since Alexander the Great there had been a steady push of the Westerners towards the East, whether they were the Greeks, the Romans, the Arabs, the Crusaders, the Turks, the Afghans or the Mughals. The other nations to join the race later were the Portuguese, the Dutch, the French and the English. Lyall built up the theory of perennial contest between the East and the West.

Lyall drew certain other lessions from history. Over-centralised Governments were sure to fall. The British were reaching soon that point. Any number of roads, canals, railways and telegraphs would not prevent the doom. Therefore, he recommended decentralization and commended Ripon's idea of local self-government. For the same reasons of larger imperial interest, he desired to retain the princely states as a balancing force, as a citadel of conservatism that might tide the stem of liberal forces. No more writing on the wall was required than what happened in 1857 as a result of Dalhousie's policy. Could we say that in the context of the present situation in Free India, Lyall's plea for decentralization has some meaning? Anyway, Lyall said that the British had to learn from Akbar who had annexed only that much as to make his power paramount, but Aurangzeb committed the folly of expanding too much, which he could not consolidate and that resulted in the downfall of the Mughal Empire.

A few other interesting ideas were set forth by these thinkers. Sir James Stephen in his LIBERTY, EQUALITY, FRATERNITY argued that the modren democratic state was neither a heaven of liberty nor of equality but an "all-powerful despotism in the hands of a gifted-minority", that the Englishman who was unwilling to share power with his next-door neighbour, Ireland, would be much more unwilling to quit India. He felt that the modern state was militarily so strong that people were forced to be submissive, that military strength and economic power of the State left no choice to the people except to settle their differences through counting of heads rather than breaking of heads, and that the ideal of happiness was not a constant concept but a fluctuating one from time to time. The conclusions drawn by Stephen were that the British record in India was morally correct, scientifically sound and politically justified. The justification was based, not on race, culture, language or outlook but on authority and military force required to rule over India in order to implement the ideal of happiness. To obtain material prosperity, a price had to be paid. Law and order, peace and economic growth, science and arts, would be conferred on Indians, if liberty was not demanded. But the ideal of happiness the Indians envisaged coincided with the liberal views of such thinkers as John Bright who thought that the British who preached liberty at home should practice that in India.

Thus ideas have offered a great challenge to the philosophical minds in order to explain the events of the past. Among the Indian historians Professor Muhammad Habib was at pains to explain the main currents of Central Asian thrust on India. He says that our medieval Indian History should be regarded neither as military nor as foreign rule but as an urban revolution carried out in northern India by the Ghorian Turks who were on the borders of India, not strictly outside the geographical limits of the country; and that the political change was merely the substitution of the Ghorian Turks for the "Thakurs" as the governing class. This change of Government led to the enfranchisement of the Indian city workers who were liberated from age old bondage.

Inspite of the persisting attacks of the Mongols for three generations they could not succeed in reducing India, although elsewhere in Asia and Europe they had reduced every culture to the ground. Life Frederick J. Turner of American historiography, Professor Habib makes the frontier theory a determinant in history. He believed that by studying masses of men; rather than ruling elite, we could get the spirit of history. "In the march of mankind it is the masses - the worker and the peasant - that count most". Professor Habib should also be remembered for a new interpretation, which kept sentiments under control. It needed great courage before 1947 for a Muslim to say in respect of Mahmud of Ghazni, "Islam sanctioned neither the vandalism nor the plundering motives of the invader... It is easy to twist one's conscience, and we know only too well how easy it is to find a religious justification for what people wish to do from wordly motives".

Among others who have been bold enough to strike an unconventional path in the jungle of historical thought, mention may be made of H.C. Raychaudhri; who warned the historians that neither the wand of the magician nor the trick of the conjurer could lift the veil of darkness that shrouded the past unless a sincere attempt was made to collect every bit of relevant data of incontrovertible nature. He did not think that AHIMSA was a very helpful concept in history. It led to disastrous consequences in the case of the Mauryan Empire and also of the Gupta Empire. Rayachaudhri calls Asoka a misguided idealist, primarily responsible for the decay of the Empire. At the time of the Greek menace, what was needed, according to Rayachaudhri, was the calibre of a Porus or Chandragupta, but Asoka was a dreamer, although a great and noble kind. "Asoka's attempt to end war met with the same fate as the similar endeavour of President Wilson".

III

Thus the world of ideas has become radically plural in history. It has gained much from varied sources, pursued in varied ways, yielding varied results. But there is some relation in them, all being the attempts to know the unknown. A question could be asked what wisdom could we hope to get from such an enterprise? What do we get out of the integration of these ideas? The answer may be that it would tell us how man understands his past, how the world has come to be what it is to-day. "World history is the progress of the consciousness of freedom - a progress whose necessity it is our business to comprehend". Nations emerge from obscurity, seek to impose themselves on others, and vanish. It is the business of history not only to say what has happened but also to grasp the rationality of the entire process. Ideas have made history a new science of intense intellectual pursuit. From the Renaissance period it has gone on adding new dimensions to its activity, although the classical and the medieval periods too did not lack ideas. Herodotus and Thucydides were at their best dealing with contemporary issues. History was at the service of theology in the medieval world, and theology itself had high wings to soar in the imaginary world of its own. St. Augustine gave a religious twist to history, which could not stand the test of Renaissance humanism. History developed rhetoric and literature, forged its links with political philosophy, with political economy, with natural science, with sociological studies, with psychology, with jurisprudence, thus widening its net to know what worthwhile things man is doing in the world. Ideas in history help us to understand what man finds in the world, and how the whole thing he sees is brought about. It is the glory of history that it touches the world of ideas wherever they exist.

My purpose would be served if I bring home to my colleagues the immensity and the universality of our discipline which is coterminus with nature. We may agree with Spengler that reality has only two aspects, the world as history and the world as nature. This devolves on us a great challenge to comprehend its meaning, and to develop the capacity to see all things purely as objects of understanding. We should rise to that pitch where a few pages of history could give more insight into the human mind than many volumes of meta-physics. We should make history a 'major industry' which could satisfy the current social needs, whether of an administrator or a statesman, or a playwright, or a novelist, or a journalist or a social scientist. Cicero was right in saying, "Not to know what took place before you were born is to remain for-ever a child". Ideas in history rush to the aid of any activity, whether founding a new nation, or justifying a legal code, or explaining a cultural change, or examining a new theory or advocating a revolution. History gives depth to your thoughts.

Many a time thoughts reach sublime heights to teach humanity even incovenient truth. As for example Woodrow Wilson's remark: "Nations are renewed from bottom, not from the top. Everything I know of history, every bit of experience and observation has confirmed me in the conviction that the real wisdom of human life is compounded out of the experience of ordinary men. The utility, the vitality, the fruitage of life courses, like the natural growth of a great tree from the soil, up through the trunk, into the branches, to the foliage and the fruit. The great struggling unknown masses of the men who are at the base of everything are the dynamic force that is lifting the levels of society. A nation is as great and only as great, as her rank and file." This refutes the theory of great men as the moving spirit in history. Ideas present before us an exciting picture of the march of men across the centuries, and the multitudes of human beings trying to pass on to us a better life than their own. The world of ideas depict the great drama of life in which characters of all types are ever engaged in a fight to win the battle between right and wrong. A historian is not a photographer holding a camera, but a painter lost in his skill to produce a MONA LISA, hence history is necessarily subjective and individual, and hence my refrain that a historian is a statesman of ideas and a poet of the mind.

History is the reflection of the genius of a people which results in labour that builds the cultural heritage of mankind. In this process ideas become the pulsating current which gives life to history, whose chronicle is more for contemplation on causes, conditions, character, nature and effects of the events. The advances of invention, varieties of economic organisation, the experiments in Governments, the aspirations of the religions, the patterns of the social change, the panorama of morals and manners, the masterpieces of art, literature, philosophy and science, all are the products of man's mind, which deserve greater attention in history. Creative historiography would emerge when we try to synthesise the unity of human life in perceiving that behind the political, social, economic or cultural factors, there is a spark or flash that forms the genesis of our history. It is a filtering process in search of the ultimate cause, and we land ourselves on "ideas". Institutions, adventures and ways are but the vehicles of the same motivating force which takes us to strange lands.

If we analyse why Egyptian, Babylonian or Assyrian cultures are dead, and Indian culture is still alive and dynamic, we would find that creative cross fertilisation of ideas is still strong in India. I would illustrate my point by taking only one leaf from our most recent history. In the post-independence era a super craftsman in ideas conceived of a policy whereby India, neither commanding the military power of America nor the economic strength of Russia would command the respect of both, and act as the most decisive factor in world affairs. A new concept of balancing force, deeply rooted in the middle path of Buddha, a sort of neutrality, not the passive role of Switzerland, but the active push of the non-aligned, a third alternative not to barter away one's self-respect by joining either of the military blocks, and a pillar of moral strength which supports right causes by adopting peaceful yet effective means, were all the brain-waves of one great soul, Pandit Jawaharlal Nehru, the leader who brought glory to India.

The greatness of India is that it has not been averse to absorb ideas from any quarter, which get fertilised in its rich tradition of assimilation. Culturally, India has been reinvigorated by mental contact with the West from Alexander's time, with the Middle East from the rise of Islam and with Europe from the time of Vasco da Gama. Spiritually—the area of its supreme pride—it has kept the dynamo of its churning thoughts rotating from the time of Mohenjo-daro to Gandhiji. Open the pages of the UPANISHADS or GEETHA or GEETHANJALI, you will be struck by the wonder of ideas. Go to Taj or Puri temple or Golden temple, you would be amazed by the richness of ideas. What are our Shankaras, Madhavas, Kabirs, Tulsidas, Guru Nanak, Shah Wali-Ullah or Arvind Ghosh, if they are not a powerhouse of ideas? Socially, a fabric of diverse strands is woven into a unique pattern by the inner urge to find unity in diversity—a concept of deep significance to India. Politically, the battle of Kurukshetra in ideas has gone on through the ages, and at no time so intensively as at present, to retain integrity and solidarity, unity and harmony—ideas that decide the destiny of a nation. Economically, the passage of India from feudalism and medievalism to modernism and the marvel of science, have all been the result of the new magic of progressive ideas which is our goal.

Before the end of the century, let us all hope and pray, India will doubtless be among the powers of the earth in invention and industry, in wealth and trade, and in knowledge and wisdom to teach humanity "the tolerance and the gentleness of the mature mind, the quiet content of unacquisitive soul, the calm of the understanding spirit, and a unifying, pacifying love for all living things".

[Concluded]

CALENDAR OF EVENTS

Insertions for our column, Calendar of Events, are welcome. It will help early reporting of the event as also avoid unnecessary correspondence if the matter for insertion is submitted in our usual format under the heads: proposed dates of the event, title, objective, name of the organising department and name of the Organising Secretary/Officer to be contacted.

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
February 9-12, 1987	Second Conference on Economic Theory and Related Mathematical Methods	To provide a forum to discuss and share research ideas in economic theory	Planning Unit, Indian Statistical Institute, Delhi Centre	Mr. P. Chander, Indian Statistical Institute, Delhi Centre, 7, S.J.S. Sansanwal Marg, New Delhi - 110016
February 16-19, 1987	National Seminar on Crystal Growth and Characterisation of Advanced Materials for Solid State Applications	Topics to be covered are: Theoretical and Experimental Aspects of Crystal Growth; Heat and Mass Transport; Industrial Crystallisation; Rapid Solidification and Casting; Biological and Molecular Crystals; and Special Crystals—New Techniques and Instrumentation.	Crystal Growth Centre, Anna University, Madras.	Prof P. Ramasamy Convener, Third National Seminar on Crystal Growth, Crystal Growth Centre, Anna University, Madras.
February 20-22, 1987	**International Conference on Role of Universities in the Strategies for Health for All by 2000 A.D.**	**To focus on the role of the Universities in achieving Health for All (HFA) by 2000 A.D.**	**Mangalore University in collaboration with Kasturba Medical College, Manipal and International Medical Sciences Academy, New Delhi.**	**Dr. A Krishna Rao Co-ordinator, Conference on Role of Universities for HFA by 2000 A.D., Department of Medical Education Manipal-576119.**
February 23-27, 1987	Short term Course on Application of Digital M.S.S. and Thematic Mapper Data for Quantification of Agricultural and Forest Resources.	To acquaint the participants with the techniques of Image Processing and Digital Analysis of Landsat Data with special emphasis on the application of techniques to the fields of Water Resources, Pedology, Forestry, Earth Sciences and Mineral Resources.	Centre of Studies in Resources Engg., IIT, Bombay.	Dr. T.V. Pavate, Chief Project Engineer, Training Extn. & Project Cell, R.S.D. No. VI, C.S.R.E., Indian Institute of Technology, Powai, Bombay.
February 25-28, 1987	Workshop on Structures for Nuclear Power Reactor Technology	To provide a forum to take stock of the present knowhow in various civil and structural engg. aspects of nuclear power plant construction and to project the future needs for Research and Development in this area.	Department of Civil Engg., IIT, Madras.	The Coordinator, SNUPORT-REDECC 1987, Structural Engg. Laboratory, Department of Civil Engg., Indian Institute of Technology, Madras.
March 2-5, 1987	Seminar on Recent Advances in Concrete Construction	To provide an opportunity for exchange of experience amongst practising engineers, consultants, research workers and academics and to guide the research and development activities in the area of concrete construction.	Department of Civil Engg., IIT, Madras.	The Coordinator, SNUPORT-REDECC 1987, Structural Engg. Laboratory, Department of Civil Engg., Indian Institute of Technology, Madras.

Seminar on Ichthyology

The 6th All India Seminar on Ichthyology was held at Manipur Univeristy from 21-24 December, 1986. Sponsored by UGC and Manipur Government, the Seminar was jointly organized by the Life Sciences Department of Manipur University and Department of Fisheries, Govt. of Manipur with Dr. H. Tombi Singh, Professor of Life Sciences and Dean of Science Faculty, as Director of the Seminar. The 4-day seminar was inaugurated by State Irrigation and Flood Control Minister, Dr. L. Chandramani Singh and the inaugural function was presided over by Prof. K.J. Mahale, Vice-Chancellor, Manipur University. Keynote address was delivered by Dr. V.G. Jhingran, Ex-Director of Central Inland Fisheries Research Institute, and Chief Technical Adviser of Fisheries, UNDP. Prof. B.D. Nagchoudhury, former Vice-Chancellor of Jawaharlal Nehru University was the chief guest at the valedictory function.

Over 100 delegates and Fishery experts from all over India attended the Seminar. Over 50 scientific papers on various aspects of Fishery and Fish Biology were presented and discussed by the delegates in seven Technical Sessions of the Seminar. Each session began with a plenary lecture followed by invited lectures, platform presentations and group discussions. The deliberations of the Seminar included discussions on various topics like Fish Morphology & Anatomy, Fishery Biology, Physiology & Biochemistry, Cytology and Genetics, Zoogeography and Taxonomy, etc. A special session on the Fish and Fisheries of North Eastern India was also held which laid emphasis on the developmental aspects of Fish and Fishery of the N.E. Region.

At the conclusion of the seminar the following recommendations were made:

(1) Collaborative studies between the Fisheries Departments of the State Governments and Universities in all the states of the country should be encouraged;

(2) Detailed limnological survey of major water bodies including hill streams of the country in general and North Eastern Region in particular should be undertaken to evaluate the importance and subsequent management programmes of the water bodies for aquaculture;

(3) Possibility of commercial culture on scientific basis and preservation of indigenous fishes should be explored as they may be of better demand than the major carps to the local populations;

(4) An extensive study on the limnology of Loktak Lake of Manipur should be carried out to suggest ways and means of intensifying fish production of lake along with the implementation of recent multipurpose hydroelectric project; and

(5) Genetical research on the Fish breeding is to be encouraged to get improved varieties of fish and to increase the fish production of the country.

Assistance for PU Energy Research Centre

The Union Ministry for Energy is reported to have sanctioned a sum of Rs. 20 lakhs for the Energy Research Centre of the Panjab University for developing a solar energy storage system.

The Centre has installed solar heating systems in Student Centre, Faculty House, Panjab Bhawan and at many other places in and around Chandigarh. It has also installed a solar desalination system for the production of distilled water for research laboratories at the Department of Chemical Engineeing. A 10 kw wood gassifier has been installed on the campus to provide electricity during breakdowns.

CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY AND EXAMINATIONS

Applications are invited from college/university teachers for admission to Correspondence Courses in Evaluation Methodology and Examinations at Basic Level, Intermediate Level and Advanced Level/Special Professional Course. The duration of each of the three courses is six months. A personal 'Contact Programme' for three days is planned for each of the three courses. Universities/Institutions sponsoring candidates can meet the registration/course fees from out of unassigned grants by UGC.

Request for prospectus and application form accompanied by a crossed Indian Postal Order for Rs. 10/- drawn in favour of the Secretary, Association of Indian Universities and a self addressed stamped envelope (Re. 1/-) should reach the undersigned. Last date for receipt of application is **15th March** for non-sponsored and **26th March, 1987** for sponsored candidates.

Project Director (Exam)
Association of Indian Universities,
AIU House, 16 Kotla Marg,
New Delhi - 110002

News from Agril. Varsities

National Seminar on Himalayan Agriculture

A National Seminar on "Rainfed Agriculture in the Himalayan Regions of India" concluded at Pantnagar recently. The seminar was organised by the Society for Himalayan Rehabilitation and People's Action (SHERPA) in collaboration with the G.B. Pant University of Agriculture and Technology.

The participants comprising senior scientists and experts, drawn from planning research, banking and voluntary organisations, recommended comprehensive package for protecting soil erosion and environmental degradation, particularly in the U.P. hills. The seminar also suggested a number of changes in the existing development programmes.

The participants felt that the United States Development Agency (U.S.D.A.) land capability classification and the various modifications made may be all right for scientific purposes but in practice they do not have much relevance in mounting agricultural development programmes in the hills and that there is a need to have a pragmatic land capability classification for the Himalayan areas. It was, therefore, recommended that an expert committee be constituted in which the All-India Soil and Land Use Survey Organisation, Nagpur and other institutions may be involved. In suggesting modifications to the land capability classification the problems faced by hill farmers should be kept in view.

It was also recommended that research on farm and agroforestry suitable for the Himalayan region should receive top priority. All land-use planning and management in the hill regions may be on a watershed basis in which scientific measures for soil and water conservation, water and energy recycling and alternative land use should be taken up on a war footing.

Sports News

Ravishankar Varsity to Host Vizzy Trophy

The zonal universities cricket tournament for the Vizzy Trophy, 1986-87 will be organised at Ravishankar University, Raipur from February 5-12, 1987. Vizzy Trophy Cricket Championship organised every year is a joint venture of the Board of Control for Cricket in India and the Association of Indian Universities. The zonal teams for participating in this Championship are drawn from the respective zonal Inter-University Cricket Tournaments. The programme this year is as follows:

Semi-finals

(a) West Zone Vs East Zone — 5th-7th February, 1987.
(b) North Zone Vs South Zone — 5th-7th February, 1987.

Final

Between the winners of (a) Vs (b)—9th-12th February, 1987

As per the terms and conditions, both the semi-finals are to be played simultaneously on two turf wickets. Accordingly, the Ravishankar University is organising one of the semi-finals at Bhilai and the other at Rajkumar College, Raipur. The final will also be played at Rajkumar College, Raipur.

News from Abroad

Computer Software for Asian Scripts

Scientists at the Australian National University (ANU) in Canberra have developed a computer software system which is expected to help in the research and teaching of Asian scripts, including Hindi. This was based on the work done by the ANU's Faculty of Asian Studies with a computer scientist from the Department of Engineering Physics, Research School of Physical Sciences, to develop the first Australian computer software for Hindi, Thai and related scripts. The team expanded the applications of a system for computerisation of the Devanagari (Hindi) script which was first developed in 1979 by Dr. Warren Glower, a visiting fellow in the Department of Lingustics, Research School of Pacific Studies, who had sought to produce material for a literacy programme with a Nepalese tribe whose Language had until then been unwritten.

The computer system developed at the ANU, unlike a typewriter, is able to depict changes in Line width in the characters, the general boldness of the script and special character complexes. The main features of the new system include a keyboard transformation table, a set of context-sensitive symbol manipulation rules and an arbitrary font printing system. The transformation table enables the computer keyboard to become a Devanagari or other typewriter keyboard, so that it can be easily used by people familiar with typewriters for the Languages concerned.

The context-sensitive symbol manipulation rules allow for the variation in position and form of characters, while the arbitrary font printing system retrieves the actual shapes to be printed from font files as dictated by the symbol-manipulating rules. As a result, very accurate and flexible placing of small portions of characters, which make up the required whole characters, was possible.

The new system has been of considerable value to Australian researchers who otherwise would have had to send to Honolulu for Vietnamese typewriter golf balls and to Fiji to get Hindi papers printed.

Higher School Reform in USSR

Mr. Gennadi Yagodin, the USSR Minister of Higher and Specialised Secondary Education, said that the aim of restructuring the educational system is to train specialists capable of modernising the economy at higher rates. He noted that this plan was submitted for nationwide discussion. Twelve million people participated, and their proposals were duly studied and taken into consideration.

Under the new system methods of intensive training will be introduced and lecture-room activities will be curtailed by 25 per cent. Independent work by students and the development of their intellectual creativity will assume greater importance. The practical training of future specialists will also change. They will be provided with an opportunity to show their worth at a factory first as a worker, then a technician and then an engineer.

Though half of the country's Doctors and Candidates of Sciences are employed in the 894 colleges and universities, and the 4,500 technical secondary schools, their contribution to the development of research is as yet inadequate. As a result of reorganisation the level of their scientific investigations will rise 100-150 per cent by the year 2000.

In conclusion the Minister said that restructuring will affect all 100,000 young men and women from more than 100 countries studying at Soviet higher schools because the curriculum is the same for all students.

News from UGC

INSAT-1B Programme of UGC

Between 9th and 13th February, 1987 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

9-2-87

"Biopsy of Liver"
"Models of Breast Cancer"
"The Parasites"

10-2-87

"Shooting the Moon"
"Apollo-14 Mission to FRA MAURO"

11-2-87

"Fish by Catch"
"Management of Development Project-II"
"Pearl Culture"

12-2-87

"Teleteach-13 Jurisprudential Inquiry Model"
"Astronomy before Technology: Unseemly Events in the Sky"
"Waste Water Disposal in Oil Refineries"

13-2-87

"Computer Memory-I" (Primary Storage)
"Theodolite"

We Congratulate . . .

Dr. K.N. Katiyar who has been appointed as Vice-Chancellor of the G.B. Pant University of Agriculture and Technology, Pantnagar.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

ADDITIONS TO AIU LIBRARY

Addis, T.R. *Designing knowledge-based systems.* London, Kogan Page (c 1985) 322 p.

Bali, Arun P. *College teachers: Challenges and responses: A case study of Delhi University.* Delhi, North Book Centre (c 1986) x, 220 p.

Banerjee, N.V. *Knowledge reason and human autonomy: An essay in philosophical reconstruction.* Bombay, Somaiya (c 1985) 265 p.

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Mongia, J.N., ed. *India's economic development strategies* 1951-2000 *A.D.* Delhi, Allied (c 1986) ii, 774 p.

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Vashishth, C.P., ed. *New education policy vis-a-vis library development.* Delhi, Indian Library Association, 1986. vi, 121 p.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

HUMANITIES

Philosophy

1. Bhatnagar, Vijay. *Vedant sampradayon mein naitik karam sampratyay vishleshan.* Durgawati.

2. Biswas, Dulal Chandra. *Sri Sri Chaitanya Charitamrita iswartattwa.* Rabindra Bharati.

3. Jain, Nirmala. *A.J. Ayers theory of knowledge.* Sukhadia.

4. Mohanty, Subodh Kumar. *The concept of Blik.* Utkal.

5. Rashidul Alam. *Bertrand Russell's logical atomism. D. Litt.* Rabindra Bharati.

6. Sekh Abul Kasem. *Some problems about universals.* Burdwan.

7. Singh, Upendra Narain. *Pratyabhigya darshan ke kuchh pramukh sidhant: Shoonyavad ke sandarbh mein.* BHU.

8. Vasmatkar, Kusum Chimanrao. *Tagore aur Shri darshan mein Ishwar kee dharana.* BHU.

9. Yadav, Sochan. *Mahatma Gandhi aur Karl Marx ke samvad kee sambhavana mein darshanik parikshana.* BHU.

Religion

1. Sarao, K.T.S. *Origins of Buddhism.* Delhi.

2. Vijay Laxmi. *A comparative study of Buddha Charita and Raghavansha.* Delhi.

Fine Arts

1. Shah, Mahesh Champaklal. *Bharat Muni's theory of abhinaya: A study.* Baroda.

Music

1. Dhar, Sunita. *Contribution of Senia Charana to Indian classical music in relation to ragas compositions and instrumental techniques.* Delhi.

2. Ghoshal, Anup Kumar. *Nazrul Geeti: Rup-o-rasanubhuti.* Rabindra Bharati.

3. Maity, Krishna Rani. *Pashcim Simanta Banglar jhumur gaan.* Rabindra Bharati.

4. Sharma, Lovely. *Sitar kee utpatti, gharanen evam saundaryatmak mulya.* Baroda.

Language & Literature

English

1. Badlani, Rajni. *Pedagogical grammer: Form and function.* CIEFL.

2. Bhandari, Sudha. *An evaluation of George Bernard Shaw as a novelist.* Bhopal.

3. Chakraborty, Santosh Kumar. *English poetry of nineteenth century: Native poets of Bengal.* Rabindra Bharati.

4. Dutta, Radharaman. *A critical study of the novels of George Orwell.* Vikram.

5. Francis, Mary. *D.H. Lawrence and St. Francis of assissi nature mystics.* Calicut.

6. Gosai, Mafatlal Ravatgar. *Thesis on the novels of Mahadev Malgonker: Stylistic approach.* S. Gujarat.

7. Gurtu, Madhu. *Anaphoric relations in Hindi and English.* CIEFL.

8. Joseph, Augustine. *A study of the themes of Edith Wharton in her major fiction.* Ravishankar.

9. Madhusudan Rao, M. *The existentialist strain in contemporary Indo-English fiction.* Osmania.

10. Mendonca, Rita. *The poetry of D.H. Lawrence.* Jammu.

11. Mongia, Sunanda. *The existentialist element in modern American drama. O'Neill, Miller and Williams.* BHU.

12. Nirmala, N. Girija. *A comparative study of English spoken by teachers of English and teachers of other subjects and the phonetic correlates of 'good' & bad' spoken English.* CIEFL.

13. Parihar, Anita. *The novels of Lawrence Durrell: A study in themes.* Kumaun.

14. Prasad, Gauri Shankar. *A comparative study of humanism in the poetry of W.B. Yeats and R.N. Tagore with special reference to the Tower and Gitanjali.* Magadh.

15. Ramakrishna Murthy, V. *Real and imagined worlds: Society and politics and in Indo-English novel,* 1935-1975. Osmania.

16. Ravindranathan, S. *Modes of characterization in the major plays of Bernard Shaw.* Madurai.

17. Sastri, P. Chandrashekhar. *The feminine mystique and the poetry of Adrienne Rich and Anno Sexton.* Osmania.

18. Siddiqui, Nayyar Parvin. *A critical study of W.H. Auden's poetry and plays with special reference to his political and social commitments.* Nagpur.

19. Singh, Jai Shankar. *Shelley as a narrative poet.* BHU.

20. Subramanyam, K. *Swami Vivekananda's contribution to Indian prose literature in English.* Madurai.

Russian

1. Nagpal, Ravinder Kumar. *Lexical transformations in the process of translation from Russian into English.* Delhi.

2. Saxena, Ranjana. *Obraz zhenchinyi virusskoii Russkoi Sovetskoi literaturei.* Delhi.

Sanskrit

1. Abha Rani. *Abhidhmath sangrahon ka shastriya anusheelan.* Magadh.

2. Bandyopadhyay, Arunima. *Apadharma in the Mahabharata: A critical study.* Burdwan.

3. Chaturvedi, Mohan. *Abinavshktayan vyakaranasya sameekshatmak-adhyayanam.* BHU.

4. Chaturvedi, Neelam. *Kathasaritsagar mein nihit ayurvedik tattvon ka adhyayan.* BHU.

5. Dharam Singh. *Kalidas sahitya ka Amarkaushiya anusheelan.* Bhopal.

6. Dubey, Bhagyawati K. *Harshvardhan ke rupakon mein ayurvedik samagri: Ek sameekshatmak parisheelan.* BHU.

7. Durga Prasad Rao, Chilakamarthy. *A study of Ratna Prabha.* Andhra.

8. Garg, Saroj. *Bharatiya darsana mein jatti-vyakti vicara.* Delhi.

9. Guha, Sukla. *A study of the Ramayana as precursor of Sanskrit Ornate epics.* Burdwan.

10. Kiran Bala. *Acharya Abhinav Gupta kee kritiyon mein atmsakshatkar ka swaroop.* Jammu.

11. Mishra, Ajay Kumar. *Mahabharata ke anushasanparya mein achara-vyavastha.* BHU.

12. Mukhopadhyay, Tulsidas. *Rigveder gouna devata.* Burdwan.

13. Nirbhay, Vinod Kumar. *Comparative study of the philosophical principles as depicted in the Vaishnava Puranas.* Delhi.

14. Panda, Pradipta Kumar. *A study of Madhusudana Mishra's commentary on the Dhvanyaloka.* Delhi.

15. Pande, Prakash M. *Cultural aspects of the age of Bhavabhuti. D. Litt.* Nagpur.

16. Pandey, Jai Prakash. *Shiksha granthon mein varna-vigyan.* BHU.

17. Pandey, Kokila. *Shudrak paneet Machhakatik mein varnit vividh parivesh.* Kumaun.

18. Pandey, Prabha. *Nyaysar: Ek alochnatmak adhyayan.* Kumaun.

19. Patra, Khagendra. *A critical study of Gourakrsnodaya Mahakavyam composed by Mahamahopadhyaya Govind Misra.* HS Gour.

20. Rajeshwri Devi. *Sanskrit vangmaya mein Mahatma Gandhi.* Delhi.

21. Sah, Deepa. *Nyaya Manjari: Ek samalochnatmak adhyayan, anuman ke sandarbh mein.* Kumaun.

22. Sharma, Aditya. *A study of Abhinya Catustaya with special reference to Abhinaya Darpana of Nandikeswara.* Delhi.

23. Sharma, S.K. *Mahakavi Dr. Shridhar Bhaskar Varne Krit Shri Shivarajuodayam Mahakavya ka sameekshatmak adhyayan.* Kumaun.

24. Siddashram, Basawaraj P. *Shri Vidyaranyar jivanmuktivivekada tattwa siddhanta: A critical study.* Gulbarga.

25. Sriranga Charyulu, Srimajtirumala Kunchapudi. *Krudadi vrutti vicharah.* Andhra.

26. Suryanarayana Murti, Godavari. *Influence of other sastras on Alankarasastra.* Andhra.

27. Taragi, C.S. *Mahabharat ke pauranik akkhyanon ka utpatitmulak evam vikasatmak adhyayan.* Kumaun.

28. Tiwari, Rama Kant. *Swami Karapatri virachita Bhakti rasavarn ka adhyayan.* Delhi.

29. Yadav, Vidya. *Bhaubhuti ke rupakon ka natya sastriya adhyayan.* Sukhadia.

Prakrit

1. Kothari, Suresh Chandra. *A critical study of the upasakadasanga sutra.* Sukhadia.

Punjabi

1. Manjeet Kaur. *Bawa Balwant dee kavita d̄a alochnatmak adhyayan.* Delhi.

Hindi

1. Balram Prasad. *Premchand sahitya aur rashtriya chetna.* BHU.

2. Bhatnagar, Nirmal. *Vachnika Rathore Ratan Singh Maheshdasottari khiriyakatri sahitya ka sanskritik evam itihasik anusheelan.* Sukhadia.

3. Billaure, Om Prakash. *Prayojan mulak Hindi shabadavali ke sandarbh mein banking kshetra mein prayukt takaniki Hindi shabadavali ka adhyayan.* Vikram.

4. Chopra, Sushma. *Krishna Sobati ke upanyason ka adhyayan.* HS Gour.

5. Choudhary, Shakuntala. *Shri Rameshwar Shukla 'Anchal' ke kavya ka prakriti adhyayan.* Durgawati.

6. Datt, Shyamlai. *Swantantrayottar Hindi upanyason mein vaicharikta.* Ravishankar.

7. Hirawat, Bhanwar Lal. *Mewar ke Krishna bhakti kavya.* Sukhadia.

8. Joshi, Ramakant. *Hindi ke jeevan chartatmak upanyas: Ek sahityik anusheelan.* Vikram.

9. Joshi, Rashmi. *Illachandra Joshi ke upanyason mein manovaigyanik tattva.* Sukhadia.

10. Kale, Pramila. *Nav Hindi natakon ke sandarbh mein Dr. Shankar Shesh ke natakon ka vastugat evam shilpgat anusheelan.* Ravishankar.

11. Kapoor, Mohan Lal. *Hindi upanyas mein chetna-pravah paddhati.* Delhi.

12. Kotal, D.S. *Kumaun kee Bhotia janjati ke lok sahitya ka adhyayan.* Kumaun.

13. Madhurima, V.G. *Historical and socio-cultural study of the Muktak kavyas of Tulasidas.* Calicut.

14. Mohammad Sharfuddin. *Bayan Meerathi: Hayat-O-shairi.* Nagpur.

15. Mohekar, Rajul K. *Dr. Dharmvir Bharati: Vyaktitva evam krititva ka anusheelan.* Nagpur.

16. Pandey, Lata Kumari. *Apbhransh Krishna kavya ke pariprekshya mein Sursagar ka anusheelan.* BHU.

17. Pandey, Ratna Shanker. *Hindi kee janvadi kavita ka abhivyaktikalp.* BHU.

18. Pant, Bina. *Nai kavita ke pariprekshya mein mukti bodh ke kavya ka anusheelan.* Kumaun.

19. Pathak, Malti. *Nai kahani mein mahanagriya jeewan bodh.* BHU.

20. Pathankar, Subadhara. *Swatrantayotar Hindi kavya mein yugeen sandarbh.* Ravishankar.

21. Peehal, Dharampal. *Sathottar Hindi kavita: Samajshastriya anusheelan.* Hyderabad.

22. Phulwant Kaur. *Agyeye kavya ka saundarya shastriya adhyayan.* Osmania.

23. Prasad, Satya Narayan. *Krishnayan mein chitrit samaj, rajniti aur sanskriti: Ek adhyayan.* Durgawati.

24. Prasad, Shiva Chand. *Fanishwarnath Renu kee rajnitik chtena.* BHU.

25. Rajwar, Sheela. *Swatantrayottar Hindi-katha sahitya mein naree ke badalte sandarbh.* Kumaun.

26. Rao, Laxman Singh. *Rajasthan ka Hindi nibandh sahitya.* Sukhadia.

27. Rathore, Manju. *Acharya Hazari Prasad Dwivedi ke upanyason mein adhunik chetna.* JNU.

28. Sabitha Devi. *Arvind Darshan aur adhunik Hindi kavya per uska prabhav.* Osmania.

29. Sachdeva, Jodha Ram. *Bhartendu Yugeen gadya-sahitya.* Delhi.

30. Shanware, Kavita S. *Swatantrayottar sahitya chetna ke sandarbh mein Mohan Rakesh kee krition ka anusheelan.* Nagpur.

31. Sharma, Renu. *Adhunik Hindi geeti Kavya ka sandarbh shastriya vivechan.* Sukhadia.

32. Sharma, Tribhuwan Nath. *Kabir sahitya mein tantrik sadhana aur yugin sandarbh.* BHU.

33. Shukla, Chandra Prakash. *Hindi ke samajik upanyason kee parampara mein Pandit Shivsagar Mishra ke samajik upanyas.* Vikram

34. Sikarvar, Bahadur Singh. *Pragativadi kaviyon ke upanyason ka samajshastriya anusheelan.* Ravishankar.

35. Singh, Annapurna. *Jainendra ke upanyason mein nari kee parikalpana.* BHU.

36. Singh, Sandhya Kumari. *Hindi upanyason mein samajik chetana, San* 1960 *se.* BHU.

37. Sitarama Murthy, Oruganti. *Bharatendu aur veeresalingam ugeena gadya sahitya mein rashtriya sanskritika bhavana.* Andhra.

38. Subramanian, T.V. *Premchandottar Hindi kahani sahitya mein Yauvanabhavana,* 1935-60. Cochin.

39. Tiwari, Chandra Mohan. *Prahlad Dubey krit Jay Chandrika: Alochanatmak sampadan.* Utkal.

40. Tiwari, Prem Vrat. *Sathottar Hindi upanyason mein samajvadi yatharthvad.* Gorakhpur.

41. Tiwari, Rita. *Swatantrata andolan ke sandarbh mein Prasad kee kavya chetna ka adhyayan.* JNU.

42. Vishwakarma, Premlata. *Tulsi ke kavya kee saundarya chetna ka anusheelan.* Nagpur.

43. Vrat, Indu. *Tulsi kavya mein prakriti chitran.* Delhi.

Urdu

1. Afzal Jahan Ara. *Ghulam Ahmad Farqat Kakorvi: Hayat aur adabi karname.* Nagpur.

2. Humayoon Rasheed. *Some living characters of Urdu novels.* Magadh.

3. Raj Singh. *Munawwar Lakhavi, life and work: A critical study.* Jammu.

4. Sharma, Tirth Ram. *Pandit Mela Ram Waga: Hayat o khidmat.* Jammu.

Bengali

1. Adhikari, Manoj Kumar. *Narayan Patrika-o-Bangla sahitya.* Burdwan.

2. Das, Asim Kumar. *Banglar lokakrirar chharagana kathar swarup.* Rabindra Bharati.

3. Hazra, Pratap Ranjan. *Amarendra Ghosh: Jiban-o-sahitya sadhana.* Rabindra Bharati.

4. Mondal, Naba Kumar. *Banaphuler upanyash.* Rabindra Bharati.

5. Mukhopadhyay, Nisith Kumar. *Katha kabid Banaphul.* Rabindra Bharati.

6. Sarkar, Sadhana. *Manab dharma-o-Rabindra sahityar antyaparba.* Rabindra Bharati.

7. Sikidar, Leena. *Studies in the sequel of Bengali prosody in eighteenth century.* Gauhati.

8. Sinha, Krishna. *Rabindra kavyadarshna-o-kavya bichare sima-o-asim.* Rabindra Bharati.

Assamese

1. Sarkar, Rathindra. *Trend of European symbolism in modern Bengali and Assamese poetry.* Gauhati.

Oriya

1. Behera, Trilochan. *Oriya Krishna kavyare Gopi bhava.* Utkal.

2. Sahoo. Sarat Kumar. *The contribution of Gokul Narendra to Oriya reeti sahitya and compilation of Kalibati.* Utkal.

3. Tripathy, Prachi Bhusan. *Tantra in Sarala literature: A study.* Utkal.

Manipuri

1. Singh, Ningombam Chonjon. *Manipuri upanyasta jeeban darshan.* Manipur.

Marathi

1. Adawadkar, Anant D. *Vinoba Bhave yanchya vangmayacha abhyas.* Nagpur.

2. Mane, Achyut Virapa. *Marathi grameen katha : Udgam, swaroop ani vikas.* Shivaji.

Gujarati

1. Dave, Rakshabahen Prahladrao. *Bhakti tattva and its depiction in Gujarati poetry.* Bhavnagar.

Arabic

1. Syed Ainul Hasan. *Foroogh Farrokhzad: Her poetry and problems of the Iranian society.* JNU.

2. Veeran Moideen, K.V. *Origin and development of Arabic poetry in Kerala.* Calicut.

Tamil

1. Devi, M. *A critical study of Namakkal kavignar works.* Madurai.

2. Iyappan, M.T. *Natrinaiyil Agathinai kotpadugal.* Madurai.

3. Kanthimathy Lakshmi, N. *Literary theses of Tholkappiam and Ainkurunuru.* Madurai.

4. Rengammal, R. *Srivilliputhur Vadaperungkoil and Andal Koil.* Madurai.

5. Renuga Devi, V. *Structural typology of Tamil and English: A comparative study.* Madurai.

6. Sethumani. *Values in Tamil novels,* 1961 *to* 1978. Madurai.

7. Sethuramalingam. *A study of the folk songs on Ramanathapuram District.* Madurai.

8. Susila, N. *Content analysis in new poetry.* Madurai.

9. Suyambu, P. *Tolkappiyamum ilakkanavi-lakkamum oru oppayvu: Eluttum collum.* Madurai.

Malayalam

1. Stephen, C. *Samoohik parivarthanthil adyakala Malayala natakangalkulla panku.* Kerala.

Kannada

1. Sadar Basappa Channappa. *Basavaraja Kattimaniyavsr kadambari galu ondu adhyayana.* Karnatak.

Telugu

1. Krishna Murty, Dhulipala Prabhakara. *A comparative study of Bhagavata Dasama Skandha of Potana and Vyasa.* BHU.
2. Munirathnam, J. *Annamayya and Alwar: A comparative study.* Venkateswara.
3. Narasimha Rao, M. *Telugulo sandesha kavyalu.* Osmania.
4. Sidda Reddy, N. *Realism and surrealism in modern Telugu poetry.* Osmania.
5. Susheela, B. *Devi Bhagavatamulu in Telugu with special reference to Devi Bhagabatamu of Late Mulugu Papayaradhya.* Osmania.

Geography

1. Chakraborti, Banya. *A geomorphological analysis of the Mayurakshi River Basin.* Burdwan.
2. Gemawat, Sadhna. *Agricultural land use and population: A geographical analysis of Salumber Tehsil.* Sukhadia.
3. Hinger, Sheela. *Environmental resources and population: A geographical interpretation of Udaipur Basin.* Sukhadia.
4. Jagdale, Anilraj Prataprao. *Eco-geomorphological analysis of Dudhagangavedanga River Basin.* Shivaji.
5. Kanchan, Rolee. *Industrialisation and its impact on the regional development of Madhya Pradesh.* HS Gour.
6. Rai, Harish Chandra. *Tourism in Kumaun: A geographical study.* BHU.
7. Saxena, Manoj Raj. *Geomorphic studies in Dindi Reservoir Basin for landuse planning, Andhra Pradesh, India.* Osmania.
8. Singh, Yadubansh. *Bhojpur Plain: A study in cultural geography.* Magadh.
9. Zutshi, Bupinder. *Settlement structure and spatial organization: A case study of Kashmir valley.* JNU.

History

1. Arora, A.K. *Adiministrative history of Uttarakhand, Kumaun and Garhwal, during the rule of the East India Company,* 1815-1857. Kumaun, 1986.
2. Bairwan, Vijay Kumar. *Madhya Bharat kee riyaston mein rajanitik vyavastha ke liye huye andolanon ka ek adhyayan,* 1930-49. Durgawati.
3. Behera, Purandar. *The early Gangas of Kalinga, A.D.* 498 *to* 1038. Utkal.
4. Bhakuni, H.S. *Badri Datt Pandey: Ek adhyayan.* Kumaun.
5. Bhattacharya, Neeladri. *Agrarian change in Punjab,* 1880-1940. JNU.
6. Deepak Kumar. *Science policy of the Raj,* 1857-1905. Delhi.
7. Dubey, Rajendra Prasad. *Prachin Uttar Bharat mein gramin samaj evam arthik jiwan, san* 700-1200 E. BHU.
8. Gopalankutty, K. *The national movement in Malabar,* 1930-47. JNU.
9. Hluna, John Vanlal. *Education in Mizoram,* 1804-1947: *A historical study with special reference to the role of Christian missions.* Gauhati.
10. Iftikharunnisa Syeda Mumtaza Khatun. *The external relations of the Ahom Government with special reference to the diplomatic exchanges.* Gauhati.
11. Mullick, Chandika Charan. *Nalanda sculptures: Its bearing on Indonesian sculptures.* BHU.
12. Neer Prabha. *Chandon kee kar pranali tatha tatkaleen jeevan per prabhav.* Kumaun.
13. Ponnu, R. *Bhakti cult and its social impact with special reference to Tamil Nadu.* Madurai.
14. Samal, Bidyut Kumar. *The impact of religious ideas on the Indian National Movement,* 1885-1921. Utkal.
15. Sarma, Ranjit Kumar. *Epigraphic records of Bangladesh: A historical study, C. 5th Century A.D. to C. 13th Century A.D.* Burdwan.
16. Singh, Bhawani Sharan. *Role of State in market and price control in Ancient India: From earliest time upto* 1200 A.D. Magadh.
17. Singh, Madhuri. *Sushrut: Ek samajik tatha sanskritik drishtikon.* BHU.
18. Sinha, Arpita. *Bimbisar aur uskee kutniti.* Durwagati.
19. Upadhyaya, Shreeram Prasad. *Indo-Nepal trade relations,* 1858-1914. Delhi.
20. Vijay Kumar. *Relation of the Sirohi State with the British,* 1823-1905. Sukhadia.
21. Yadav, Sonaphi. *Some aspects on economic life in Nepal in the Licchavi period, circa A.D.* 464-800. BHU.

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1.2 **Master of Statistics :** *Duration :* 2 years; *Stipend :* Rs. 125; *Eligibility :* 3-year Bachelor's degree with Statistics and Mathematics as full subjects or equivalent qualification, obtained after twelve years of secondary education. Those without Statistics, but having outstanding mathematical ability, may also be considered. Holders of Statistician's Diploma/Senior Diploma of ISI are eligible for admission to the second year of the course.

The National Board of Higher Mathematics offers one scholarship of value Rs. 400 per month, for an outstanding First year student of the Master of Statistics course of the Institute, for two years.

1.3 **Master of Technology in Computer Science :** *Duration :* 2 years; *Stipend :* Rs. 1000; *Eligibility :* Master's degree in a relevant subject or Bachelor's degree in Engineering/Technology or equivalent qualification and knowledge of relevant topics of Physics and Mathematics.

1.4 **Post-Graduate Diploma in Statistical Quality Control and Operations Research :** *Duration :* 15 months; *Stipend :* Rs. 1000; *Eligibility :* Bachelor's degree in Engineering/Technology or Master's degree with Statistics or Mathematics up to graduate level or recognised research/other work in Statistics.

2. **Junior Research Fellowships :** *Fellowship :* Rs. 1000. The Institute conducts research in many areas of Mathematics. Statistics and Economics and offers fellowships for Research Courses in these subjects leading to registration for Ph.D. degree of the Institute. Details are available in the Prospectus. The Institute also offers fellowships in other research areas. Eligibility conditions for the fellowships are given below:

2.1 **Research Courses leading to Registration for the Ph.D. degree :** *Eligibility :* (i) A good academic record with M.A./M.Sc. degree in Mathematics, Statistics, Economics or Econometrics or (ii) outstanding mathematical maturity with B.A./B.Sc. degree with Mathematics or Statistics or Economics as the main subject. A candidate with a Bachelor's degree in Engineering or a Master's degree in an allied discipline like Geography or Sociology with Mathematics/Statistics at B.A./B.Sc. (Pass) level may be considered for Research Course in Economics.

2.2 **Fellowships in other research areas :**

Group A : Several areas of Computer Science which include Analysis of Algorithms, Artificial Intelligence, Computer Communication Network, Digital Communication, Fault Tolerance, Image Analysis, Parallel Algorithms, Pattern Recognition, Testable Design, VLSI Architecture. *Eligibility :* (i) M.Sc. or equivalent degree in Physics/Mathematics/Statistics; or (ii) B.E. or equivalent degree or M.E. or equivalent degree in Electronics/Computer Science/Electrical Engineering.

Group B : Dynamical Meteorology, Hydrodynamic Stability, Statistical Theory of Turbulence, Viscous Flow, Sediment Transport and Theory of Dispersion. *Eligibility:* (i) M.Sc. or equivalent degree in Physics/Mathematics/Statistics; or (ii) B.E. or equivalent degree in Mechanical Engineering.

Group C : Foundations of Quantum Mechanics, Nuclear and Particle Physics, Super-symmetry, Cosmic Ray Physics and Astrophysical Plasma. *Eligibility :* (i) M.Sc. or equivalent degree in Physics/Mathematics/Statistics preferably with Physics or Mathematics at the graduate level.

Group D : Serological and Biochemical Genetics : *Eligibility :* First or high second class Master's degree in Anthropology with specialisation in Physical Anthropology and capability of doing field work.

Group E : Several areas of Argicultural Sciences which include Crop Production Technology, Plant and Soil Analysis, Designing of Experiments and allied areas. *Eligibility:* First or high second class M.Sc. (Agriculture) in Agronomy / Horticulture and capability of undertaking extensive field work.

Group F : Plant Anatomy and Morphology. *Eligibility:* First or high second class Master's degree in Botany or Agricultural Botany with knowledge of plant anatomy and capability of doing field work.

3. **Certificate/Diploma Courses on Operation and Programming of Automatic Data Processing Equipment :** *Duration :* 1 year for certificate and additional 1 year for Diploma if one attains a specified standard in the Certificate Course. *Tuition Fee :* Rs. 200 per year, no stipend. *Eligibility :* (i) completed 21 years but is below 25 years of age on 1-4-87; (ii) Bachelor's degree or equivalent with Mathematics as a subject at higher secondary (10+2) level and (iii) acquired typing speed of 30 words per minute.

A proposal is under consideration to (i) drop the minimum age limit, (ii) reduce typing speed requirement to 25 words per minute; and (iii) admit in 1987 and 1988 those who successfully completed the One Year Course on Operation of Automatic Data Processing Equipment of ISI during 1982-86 and obtained at least 60% in the aggregate, directly to the second year. Those thus admitted will have to undergo special courses during May-July and attain a specified standard.

All courses/fellowships are offered in Calcutta. In addition, courses **1.2** and **2.1** are offered in both Delhi and Bangalore.

Besides stipend fellowship there is also a suitable annual book allowance for all courses except 3. Hostel facilities are available. Candidates who have completed or are due to complete the qualifying examinations before **1 July 1987** may also apply. This date may be relaxed by the Institute in case of candidates with oustsanding academic record and performance in the selection tests and interviews. Selection tests for the courses/fellowships will be conducted at a number of centres. Candidates should satisfy themselves that they are eligible for admission to the course or for the award of the fellowship for which they apply. If at any stage it is found that a candidate does not satisfy the eligibility conditions or the information furnished in the application is incorrect, the application will be cancelled. Prospectus and application form can be obtained from the **Dean of Studies, Indian Statistical Institute, 203 Barrackpore Trunk Road, Calcutta 700 035,** by paying an amount of Rs. 20/- by cash (between 10.30 a.m. and 2.00 p.m. on working days between Monday to Friday) or by crossed postal order, bank draft payable at Calcutta in favour of "**Indian Statistical Institute**". Postal orders must contain the name and address (in block letters) of the sender. Money orders and cheques will not be accepted.

Last Date for receiving requests for Application Forms : 6 March, 1987
Last Date for receiving completed Application Forms : 27 March, 1987
Date of Selection Tests : SUNDAY, 17 May, 1987
Tentative Dates of Interviews : 22 June — 2 July, 1987

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AIU HOUSE, 16 Kotla Marg, New Delhi-110002
Telephones : 3310059, 3313390, 3315105, 3312305, 3312429

CLASSIFIED ADVERTISEMENTS

SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING

(DEEMED UNIVERSITY)

Vidyagiri, Prasanthinilayam-515134 (A.P.)

The Institute invites applications for the following posts in the Faculty of Education:

Post	Anantapur Campus (for women)	Whitefield Campus (for men)	Experience
Professor	1	1	10 years of teaching-cum-research experience in Faculty/Institute/College of Education, administrative ability and commitment in building a substantial innovative programme.
Reader	1	1	5 years
Lecturer	1	1	2 years

AREAS OF SPECIALISATION

For Professor/Reader: Philosophical/Psychological Foundations, Sociological foundations, Awareness of Integrated Education. Methodology of Educational Research; Comparative Education/Teacher Education; Current Indian Educational problems policy, Planning and Management of Education; Educational Administration.

Subject specialisation - any area of Sciences, social sciences.

For Lecturer: Besides an awareness of basic theories and practices of education, educational psychology, philosophy, teaching techniques, micro-teaching, they should be specialists in two minimum subjects in the areas indicated below:

(a) Languages - English
(b) Social Sciences - History, Economics, Civics, Commerce, Geography etc.
(c) Sciences - Physics, Chemistry, Biology, Mathematics, Home Science.

QUALIFICATION FOR ALL THE POSTS ABOVE

Ph.D. in the subject concerned.

Interested candidates may write to the Reigstrar within 20 days of advertisement for prescribed application form.

The selected persons will be eligible for UGC scales of pay and be governed by the Contributory Provident Fund-cum-Gratuity Scheme of the Institute.

REGISTRAR

NATIONAL INSTITUTE OF HYDROLOGY

JAL VIGYAN BHAVAN, ROORKEE

Advertisement No. 1/87-NIH

Dated: Jan. 22, 1987

Applications are invited for the following posts in National Institute of Hydrology (A Govt. of India Society), Roorkee from Indian Nationals satisfying qualifications and experience laid down therefor:—

1. Scientist 'F': 1 Post

(In the area of Water Resources System of Drought Management Studies).

Scale of Pay: Rs 2000-125/2-2500 (Unrevised) The total emoluments at the initial of the scale is Rs. 4140/- excluding H.R.A.

Age: Below 50 years.

Qualifications: 1 - High Academic qualifications in Civil Engineering with specialisation in Hydrology or Water Resources or equivalent.

2 - Ph.D. Degree desirable.

3 - Experience in field problems corporate membership in professional institutions desirable.

4 - About 10 years experience in teaching, research, design or planning.

5. Proven ability of conducting and guiding research.

2. Scientist 'E': 4 Posts in the areas of:

a - Surface Water Hydrology/Water Resources System/Drought Management Studies/Drainage/Flood Studies.

Scale of Pay: Rs. 1500-60-1800-2000 (Unrevised). The total emoluments at the initial of the scale is Rs. 3170/- excluding H.R.A.

Age: Below 45 years.

Qualifications: 1 - High Academic qualifications in Civil Engineering with specialisation in Hydrology or Water Resources, or equivalent.

2 - Ph.D. Degrees desirable.

3 - Experience in Field problems, Corporate membership in professional Institutions desirable.

4 - About 7 years experience in teaching, research, design or planning.

5 - Proven ability of conducting and guiding research.

3. Scientist 'C': 6 posts in the following areas:

(i) Water Resources System/Conjunctive Use/Man's Influence/Surface Water Hydrology 4 Post
(ii) Ground Water Hydrology 1 Post
(iii) Atmospheric Land Surface Modelling 1 Post

Scale of Pay: Rs 1100-50-1600 (Unrevised) The total emoluments at the initial of the scale is Rs. 2730/- excluding H.R.A.

Age: Below 40 years

Qualifications: a - For Areas:

WATER RESOURCES SYSTEM/SURFACE WATER/CONJUNCTIVE USE/MAN'S INFLUENCE

A Bachelor's degree in Civil Engineering with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

OR

Master's degree with specialisation in Water Resources/Hydraulic Engineering/Hydrology, with minimum of 60% marks or 7.0/10.0 CPI equivalent.

b - For Area:

GROUND WATER HYDROLOGY

A Bachelor's degree in Civil Engineering with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

OR

Master's degree with specialization in Water Resources/Hydraulic Engg./Hydrology with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

OR

Master's degree in Science in Geology/Geophysics/Earth Science with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

c - For Area:

ATMOSPHERIC LAND SURFACE MODELLING

A Master's degree in Science with specialization in Physics/Meteorology with minimum or 60% marks of 7.0/10.0 CPI or equivalent.

II - 5 years experience of Design/Teaching, research in Institutions dealing with Water Resources area.

Desirable

Ph.D. in Science/Engineering

4. Scientist 'B': 9 Posts in the following areas:

(i) Surface Water Hydrology/Water Resources System/Drainage 6 Posts
(ii) Ground Water Hydrology 1 Post
(iii) Mountain Hydrology 1 Post
(iv) Hydrological Investigation 1 Post

Scale of Pay: Rs. 700-40-900-EB-40-1100-50-1300 (Unrevised): The total emoluments at the initial of the scale is Rs. 1,914.50 excluding H.R.A.

Age: Below 30 years.

Qualifications: a - For Areas:

SURFACE WATER HYDROLOGY, WATER RESOURCES SYSTEM DRAINAGE

A Bachelor's degree in Civil Engg. with minimum or 60% marks or 7.0/10.0 CPI or equivalent.

OR

Master's degree with specialisation in Water Resources / Hydraulic Engg./ Hydrology, with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

b - For Area:

GROUND WATER HYDROLOGY

A Bachelor's degree in Civil Engg. with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

OR

Master's degree with specialization in Water Resources/Hydraulic Engg./Hydrology with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

OR

Master's degree in Science in Geology/ Geophysics/Earth Science with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

c - For Area:

MOUNTAIN HYDROLOGY

A Master's degree in Science with specialization in Physics/Meteorology/Hydrometeorology/Snow Hydrology with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

d - For Area:

HYDROLOGICAL INVESTIGATION

A Master's degree in Physics with minimum of 60% marks or 7.0/10.0 CPI or equivalent, with specialization in Nuclear Hydrology.

Note: (1) In the Category of posts of Scientist 'B', 3 Posts are reserved for Scheduled Caste and One post for Scheduled Tribes. However if suitable candidates belonging for SC/ST are not available, General candidates will be eligible for consideration.

(2) Selected Persons for Scientist 'F', 'E' & 'C' can be appointed on deputation basis also.

The above mentioned posts carry usual allowances as admissible under the Central Government Rules. Age will be relaxable for persons already in service in the Institute and other Govt./Semi-Govt./Autonomous organisations as well as candidates belonging to SC/ST community, retrenched employees of Defence Services and Physically handicapped persons, as per rules of the Govt. of India.

Age will be determined as on **31 March, 1987.**

Persons already employed in Govt./Semi-Govt./Autonomous bodies should apply through proper channel. Application not forwarded through proper channel may not be considered.

Candidates applying for more than one post should use separate application form for each post and remit fees separately for each post.

Application forms may be obtained by **27th Feb. 1987** from the Chief Administrative Officer, National Institute of Hydrology, Jal Vigyan Bhawan, University of Roorkee Campus, Roorkee-247 667 (UP). Application forms duly completed in duplicate with copies of all testimonials alongwith an application fee in the form of Indian Postal Order of Rs. 8/- (SC/ST candidates are exempted from payment of fee) payable to the National Institute of Hydrology at the Roorkee University Post Office should reach the Chief Administrative Officer, National Institute of Hydrology, Jal Vigyan Bhawan, University of Roorkee Campus, Roorkee-247 667 (UP) on or before **31-3-1987.**

UNIVERSITY OF NORTH BENGAL

Applications in prescribed form are invited from Indian Citizens for the post of Professor of Botany (Specialisation in Angiosperm Taxonomy). Qualifications: As prescribed by the University Grants Commission, Detail of qualifications for Professor may be obtained with application forms.

Scale of pay : Rs. 1500-2500/- and other allowances and benefits as per University rules.

Applications on plain paper may be sent along with request for prescribed forms.

The post is reserved for the candidate belonging to S.C./S.T. provided he fulfils the essential qualifications laid down. If S.C./S.T. candidate is not available or not found suitable, post will be filled up from general categories. Hence non S.C./S.T. candidates may also apply.

Choice of selection committee may not necessarily be confined to those who apply formally. No application except in prescribed application forms may be considered.

Prescribed application forms may be obtained from the office of the Registrar personally on payment of Rs. 5/- (Rs. 3/- for S.C./S.T.) in cash at the University Cash Counter or by sending a self addressed envelope of 25 x 13 cms. affixed with stamps worth Rs. 3.00 accompanied by crossed I.P.O./Bank Draft of Rs. 5/- (Rs. 3/- for S.C./S.T.) in favour of the University of North Bengal. Filled in application forms (6 copies) along with one self addressed unstamped envelope must reach the office of the Registrar, P.O. North Bengal University, Dist. Darjeeling, Pin: 734430 on or before **28-2-87.**

REGISTRAR

MADURAI KAMARAJ UNIVERSITY

Madurai-625 021

Notification No. R/2/87

Dated : 28-1-1987

Applications in the prescribed form are invited for the posts of PROFESSOR/ READER in the University for M.Sc. Computer Science Programme. (Sponsored by the Defence and Research Development Organisation, Delhi)

Scale of Pay

Professor: Rs. 1500-60-1800-100-2000-125/2-2500

Reader: Rs. 1200-50-1300-60-1900

Appointment of persons on deputation will also be considered, if the candidates are found suitable and the employer is agreeable to spare the services.

The prescribed form of application and full details regarding qualifications and experience required can be got from the undersigned on requisition accompanied by

(i) a self-addressed envelope with postage stamps to the value of Rs. 3/80ps affixed thereon; and

(ii) a State Bank of India challan for Rs. 10/- (Account No. 1 of the Madurai Kamaraj University) or Demand Draft for Rs. 10/- payable at Madurai drawn in favour of the REGISTRAR, MADURAI KAMARAJ UNIVERSITY, MADURAI-625 021.

MONEY ORDERS AND POSTAL ORDERS WILL NOT BE ACCEPTED

Qualifications and experience

Minimum M.Tech/M.S./M.E. in Computer Science/ Engineering, with a good I Class and considerable Research/Technical/ Professional/teaching experience, publications etc., together with Ph.D. or its substantial equivalent, in the above areas.

Note: 1. Candidates with minimum M. Phil in Applied Mathematics, having taken Computer Science/Engineering papers, at M.Sc. level, with good I Class, backed by Research etc. experience, Ph.D. or its equivalent in this area, will also be considered.

2. All posts are temporary initially for a period of two years but are likely to continue.

The number of the notification should be quoted in the requisition i.e. No. R./2/87.

The last date for receipt of filled in applications is **28-2-1987.** Applications received after the due date will not be considered.

P.P. Chinnadurai
REGISTRAR

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429. Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

D 52.

University News

MONDAY, FEBRUARY 16, 1987

Rs. 1.50

m left to right : Shri L.D. Kataria, Vice-Chancellor, Shri S.M.H. Burney, Governor of Haryana and Chancellor of the University, Shri G.S. Dhillon, Union Minister for Agriculture and Rural Development and Mrs. Prasanni Devi, Haryana Agriculture Minister at the 16th Annual Convocation of the Haryana Agricultural University, Hisar.

BIRLA INSTITUTE OF TECHNOLOGY

MESRA : RANCHI

(A Deemed to be University)

ADMISSION - 1987

Bachelor of Engineering and B. Pharm. (4-Year) Degree Course

Entrance Examination for admission to (1) Bachelor of Engineering (4-Year) Degree Course in Civil, Electrical and Electronics, Mechanical, Electronics and Communication, Computer and Production Engineering, and (2) B. Pharm. (4-Year) Degree Course in Pharmaceutical Sciences will be held on **May 30 and 31, 1987** at the following centres:

> Allahabad, Agra, Bhagalpur, Bhubaneswar, Bhopal, Bangalore, Bombay, Calcutta, Chandigarh, Delhi, Gauhati, Hyderabad, Jamshedpur, Jaipur, Lucknow, Madras, Muzaffarpur, Patna, Ranchi and Sindri.

provided sufficient number of candidates opt for the proposed centres.

Qualifications

For Bachelor of Engg., : I. Sc. or 10+2 or equivalent examination with Physics, Chemistry and Mathematics; for B. Pharm. with Physics, Chemistry and Biology.

THOSE APPEARING THIS YEAR AT THE QUALIFYING EXAMINATION ARE ALSO ELIGIBLE TO APPLY. Seats are reserved for SC/ST candidates.

The last date for receipt of completed application form is **31-3-1987**.

Application form can be obtained by post on pre-payment of Rs. 25/- by crossed Postal Order, payable to the Registrar, Birla Institute of Technology, Mesra, Ranchi. The request should accompany a self addressed and stamped envelope of size 26 cm. x 12 cm. bearing postage stamps of Rs. 1.80. p. clearly mentioning the Form required i.e. Bachelor of Engg. or B. Pharm. — as the case may be.

J. B. Saksena

REGISTRAR & OSD

UNIVERSITY NEWS

VOL. XXV FEBRUARY 16
No. 7 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor :
SUTINDER SINGH

Examinations Sans Tension

S. P. Sylvester*

An examination is an unwelcome event to only a handful of students. The majority is made to suffer due to the minority—reversal of democracy !!! Is it not possible to think of a few democratic norms to save the entire system of examinations? The new national education policy also emphasises the need for a revision of the existing system of examinations. It is strange to note that even in prestigious disciplines where students are admitted on the basis of merit, there is a constant and persistent demand for the postponement of examinations. Have we ever heard of an agitation from students to the anticipation of dates of examinations? A few students are capable of holding the system of examinations and the future of deserving students to ransom. It will give the old-timers a shock to learn that even stay orders are brought on dates of examinations. Besides, a negligible number of students resort to demonstrations which very often turn violent and end up in the destruction of buildings, furniture, fittings and expensive equipments acquired with the tax payer's contribution channelled through the UGC and other funding agencies. 'Students ransack PWD office: Students of government polytechnic college today ransacked the building of a state government office in the L.D. Engineering College compound and set fire to its furniture demanding postponement of terminal examinations, scheduled to begin next month'. This is only an example of several such agitations. Such agitations result in the loss of several days of teaching and learning. It also paralyses the academic life, harasses the public, the law enforcing authorities and the police force who always become easy victims of agitations and demonstrations. When the dates of examinations are announced students come in the grip of 'examination neurosis'. It is the moral responsibility of the authorities to liberate students from this mental tension by administering a 'preventive therapy'. If students want to get their examinations postponed, let them be allowed to do so. Students should be encouraged to take an examination without disturbing their psyche. It will not be out of place to consider a few options which will enable students to take their examinations whenever they are prepared for it both mentally and physically:

(i) Allow students to take an examination whenever they want.
(ii) All students need not sit for an examination at the same time.
(iii) There can be periodical examinations (once in every two months or three months).
(iv) Dates of examinations are fixed at the beginning of the academic year.
(v) Students have to give their optional dates at least one month before the commencement of examinations. Even if the students who have opted to take an examination on a particular date fail to do so, they could be given another chance. But they forfeit their fees.
(vi) A student could be given four or five years from the date of the close of the final academic semester/year to complete the examination.

(*Continued on page* 9)

Department of English, M.S. University of Baroda, Wadodara-390002.

Students' Service Centre

A Blue Print

N. L. Mishra*

Crowd of students and other visitors is a common sight in the central administrative offices of almost all the universities of the country. This trend is growing day by day. It not only hampers the normal functioning of the office but also spoils the sanctity of examination system. Efforts are being made everywhere to get rid of this problem. But a sensitive issue of this nature requires a deep thinking and careful analysis. While talking about systematization of services to be rendered to the student community, it may first be considered as to what for the students come to the central administrative block. Only a limited number of students visit the central office for the problems related to admissions or teaching. For such purposes they go to the office of the concerned college or department. Students coming to the central office are mainly connected with such purposes as results of scrutiny or revaluation, issue of duplicate marks sheets, issue of degree or provisional certificate, information regarding commencement of examinations, corrections in results, marks sheets and so on. Such frequent visits of students may lead to two possibilities:

(i) The office may get crowded and dealing assistants be disturbed; and (ii) More chances of undue contacts between the students' leaders and employees. Both the situations are not desirable. At the same time it is also essential that the students must be attended to properly and promptly. In these circumstances, it is advisable that a separate window-service be arranged where all possible services relating to examinations may be rendered. It may be called 'Students' Service Centre' (SSC). However, it should not be confused with Students' Advisory Bureau or Vocation Guidance Bureau.

The window service related to examinations should be arranged in such a way that all possible requirements of the students are met under one roof. It may be a separate building attached to the Central Administrative Block. Better still, if big hall(s) is/are constructed for the purpose. In the central part there may be a semi-circular counter and on both sides small service counters be provided. The service counters may be in the shape of small cabins; each cabin dealing with one or two specific jobs. The building of SSC may be designed in such a way that the counters are well connected with the concerned sections dealing with the relevant jobs internally. At the same time the counters should be arranged in such a way that no body gets inside. In short, while designing the SSC it may be kept in view that:

(a) no student is required to enter the administrative block;

(b) all sorts of queries could be cleared and students satisfied at the counters of the SSC;

(c) all the counters opened in SSC form one compact block;

(d) the concerned sections are located close to the counters of SSC as far as possible;

(e) the relevant old records are stacked in the rooms situated close to counters;

(f) all the counters are manned by competent persons,

(g) the SSC is under the constant supervision of a competent officer; and

(h) copies of all notifications, circulars and other informative papers are endorsed to the Incharge, SSC.

General Enquiry Counter

This counter may be arranged in the centre of the hall(s) with semi-circular dias. This would be the most important part of the SSC where incharge of the centre be asked to sit along with his competent assistants. Copies of handbooks, ordinances, syllabi and relevant orders should be readily available at this counter. It is desirable that a copy of orders/decisions relating to students be invariably endorsed to the SSC. Important information can also be displayed on board which may be permanently fixed for this purpose. The persons posted on the general enquiry counter should have complete knowledge of examination matters so that they

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Deputy Director (Admn.), H.C.M. State Institute of Public Administration, Jaipur.

are able to answer any type of query raised by visiting student/parent. Generally the students have queries regarding following points:

(i) Declaration of results.

(ii) Position regarding the results with-held.

(iii) Time table for examinations.

(iv) Last date(s) for submission of examination application forms.

(v) Queries in connection with examination application forms.

(vi) Original documents submitted by the students but not received back.

(vii) Change of subject(s) in the examination forms.

(viii) Change of examination centre.

(ix) Scrutiny results.

(x) Revaluation results.

(xi) Correction in the marks sheet.

(xii) Refund of fee consequent upon rejection of examination form/revaluation/scrutiny applications.

(xiii) Request for carrying forward the fee for next examination in case the candidate does not appear.

(xiv) Rejection of examination forms.

(xv) Degrees/provisional certificate/English versions.

(xvi) Information regarding admission cards or permission letters.

(xvii) Other information relating to examinations.

Business Counters

The counters dealing with actual transaction of documents/papers may be arranged on both sides of the general information/enquiry counter in a row. In such an arrangement, the officer-incharge of the SSC who is supposed to sit at the general enquiry counter, will have better supervision. Job distribution among the various business counters may tentatively be done as under:

Counter No. 1 : Marks sheets and provisional certificates of the Undergraduate classes for the back years.
Counter No. 2 : Marks sheets and provisional certificates of the Undergraduate classes for the current year.
Counter No. 3 : Marks sheets and provisional certificates of the Postgraduate and Honours examinations.
Counter No. 4 : Research (M. Phil and Ph.D.).
Counter No. 5 : Enrolment and Migration.
Counter No. 6 : Degrees
Counter No. 7 : Professional courses.
Counter No. 8 : Cash counter.
Counter No. 9 : Cash counter.
Counter No. 10 : Counter for sale of all sorts of priced forms, articles etc.

Arrangement of the counters can be done as per convenience and requirement. However, it is preferable if these are kept in close proximity of the dealing sections.

Introduction of Token System

To regulate and systematise the functioning of SSC and to provide facilities to the student community, it is desirable that token system on the pattern of banks, is introduced. It will not only help proper accounting of the work done at each desk/counter but will also reduce crowds at the centre. Generally, there are two types of visitors at the SSC : (a) who have some verbal queries, and (b) who come for collection of documents, such as, duplicate marks sheets, advance marks sheets, provisional certificates etc. The verbal queries may, further, be of two types:

(i) General verbal query which may be answered by the officer sitting at general enquiry counter; and

(ii) Specific verbal query which can be answered after consulting the relevant record only.

To deal with the specific verbal queries, card system can be devised. A simple card of 4″ x 4″ size as illustrated below can be used for the purpose.

……………………UNIVERSITY………………………

Students' Service Centre

INFORMATION CARD

PART-I

S. No. Date…………………

Name of visitor…………………………………………
with address
…………………………………………

Particulars of the
information desired

Signature of the visitor

(Front portion of the card)

PART-II

Section…………………… Date………………

Factual position/answer to the query…………………

……………………………………………………………

Signature of the Section Officer

PART-III

I have got the information/reply to my query.

Signature of the visitor

(Back portion of the card)

As illustrated, part I of the card would be filled in by the visitor and submitted at the general enquiry counter. Particulars such as name, address and purpose (query) would be written by the visitor. Serial number would be marked by the counter clerk. The counter clerk, then, will enter the serial number and name of the concerned section in a register, maintained for the purpose, and pass the card to the concerned section for necessary action.

Part II would be used by the Section Officer of the concerned section who after putting brief answer to the query will return the card to the enquiry counter. On the basis of information received from the section on part II, the counter clerk will satisfy the query of the visitor and take his (visitor's) initials at the space specified for the purpose on part III. All such cards may be stacked in month-wise bundles.

To deal with the second category of visitors who mainly come for marks sheet, migration certificate, provisional certificate or any other document, a format for application may specially be developed. It may be so designed that it serves both the purposes—application as well as token. It may tentatively be as per the illustration (which appears on page 7).

As is evident from the illustration of the proposed format for application, particulars of part-I would be filled in by applicant himself/herself. The application would be submitted first at cash counter along with the required fee where the necessary entries would be made in the columns made within the box. After doing the needful the cash clerk will return the application form along with cash receipt to the applicant.

Now, the application would be submitted at the concerned counter where the entries of part II and part III would be completed by the counter clerk. The clerk concerned will then send part I to the concerned section and hand over part III to the applicant. Thus part II will be retained by the counter clerk himself.

On the basis of particulars given in part I, the concerned section will prepare the document, enter it into a register maintained for the purpose and will return part I of the application along with the desired document(s) to the counter clerk. The counter clerk will link it up with part II, initially retained by him. On presentation of token (actually part III) the document will be delivered to the applicant. On receiving the document the applicant will put his initials at the specified space in part I in token of having received the document.

Access to Old Tabulation Registers

Whenever there is demand for a duplicate marks sheet, the relevant tabulation register is needed to have the marks obtained by the concerned student. If it relates to some examination of the current year the required tabulation register can be consulted in the concerned section. But if it is for some back year(s) the tabulation register may not be available in the section as it is generally not possible to keep all the tabulation registers for all the back years in the section itself. Number of such old tabulation registers may be in hundreds. In universities having a large number of faculties this number may be in thousands. Thus to keep/store the old tabulation registers, it is always a problem and generally these are kept in the record room. For a speedy disposal of applications for duplicate marks sheets it is desirable that the tabulation registers for all the back years are kept in a room just attached to the counters of the SSC. Needless to mention this room should be safe and well guarded from all sorts of entry by unauthorised persons. The tabulation registers may be stacked in the racks lined up along the four walls in a systematic manner. The central place may be left out for the staff to be deputed for preparing the duplicate marks sheet. Pads of blank marks sheets for all the examinations of the back years may be arranged in the same room or in any side room which is equally safeguarded. Thus, whenever there is demand for duplicate marks sheet of any back year, the requisition slip may be directed to the incharge of the old tabulation register room.

Manning the SSC

SSC is a sort of 'Show Window' of the examination administration. That is why it is desirable that the persons having alround knowledge in the examination matters should be posted at the counters of the SSC. For the SSC of the size mentioned in the foregoing paragraphs, the optimum number of the staff may be suggested as under:

Incharge of the SSC	1	Not below the rank of Asstt. Registrar or Section Officer.
For general enquiry counters	2	One Assistant and one U.D.C.
For business counters	8	Four UDCs Four LDCs
For Cash counters	3	One Accountant, Two Junior Accountants.
For old tabulation registers	3	One Assistant, Two U.D.Cs.
Class IV employees	5	One for general counter, three for business counters, one for old tabulation register room.

The number may vary from university to university depending upon the number of counters, work load and the manpower required/available for this job.

2 MAR 1986
C. F. T. R. I., MYSO

Training of the Staff

There may be hundreds of students on the SSC counters with innumerable queries. All the queries are to be satisfied then and there on the spot. Possibilities of undesirable way of talking by the student community too cannot be ruled out. Inspite of all this the person who is manning the counter is supposed to remain calm, quiet and responsive to the queries. Thus only persons who are temperamently suitable, sincerely dedicated to their duty and have a sense of involvement, should be posted at the SSC counters. It is essential that these persons have full knowledge of examination system, are well acquainted with the rules, statutes and ordinances, have upto-date knowledge of the relevant administrative orders issued from time to time and know the functioning of the SSC well. To ensure that persons who have been deputed to work at the SSC have adequate knowledge in the respective areas, mentioned above, it is desirable that all such persons are given practical training. Behavioural aspects such as communication, motivation and leadership should also be covered in the training. The senior officers who are engaged in the examination management may act as faculty members for the purpose of this type of training programme.

Notice Boards

With a view to disseminate important information regarding examinations and functioning of the SSC, some notice boards may be got displayed outside the building of the centre. One board may indicate various types of business to be transacted at different counters. The other board may display the rules/important features which are of permanent nature. The third board may be used for giving an idea of the campus through a layout plan. The fourth one can be used for displaying the dates fixed for various important things such as last date for acceptance of examination forms, date for commencement of examinations, tentative dates for declaration of results, last date for submitting the application for scrutiny or revaluation and date of supplementary examination etc. Any other information which is considered important from the view point of general interest of the student community, may also be written there. One big sized board may be kept reserved for affixing the result sheets. Display of important information in this manner will definitely reduce the burden of counters and will satisfy many students just on the gates of the SSC.

Monitoring

For better organisation of any unit, big or small, and proper implementation of any system and effective supervision and constant monitoring is a must. The working of the SSC is such that most of the queries are satisfied and applications disposed of on the same day. Thus to ensure that everything goes on smoothly and in a mechanised way, the incharge of the SSC has to monitor many things. He must ensure that:

(i) the SSC starts functioning at the scheduled time;

(ii) the staff turns up in time;

(iii) no counter is without staff;

(iv) the duplicate/advance marks sheets/provisional certificates and other documents are prepared in the proper sequence of the token issued for the purpose;

(v) there is a proper inflow and outflow of relevant papers between the counters and the concerned sections; and

(vi) at the closing of the day each counter submits information for the work completed/left incomplete. Such information may be furnished in the following proforma:

DAILY REPORT FOR COUNTER NO ....

Date.....................

Number of applications received.	Tokens issued (number)	Number of application disposed of.	Balance	Name(s) of the section(s) with which remaining applications are related.
1	2	3	4	5

(vii) all the specific verbal queries which were posed to the general enquiry counter have been responded to by the concerned section and accordingly information given to the students. For this purpose the general enquiry counter may prepare a statement under the following heads:

STATEMENT SHOWING DISPOSAL OF SPECIFIC VERBAL QUERIES

Total No. of specific verbal queries received.	No. of information cards sent to the section	No. of information cards received from the section.	No. of cases in which required information given to the students.	Balance	Name of the section(s) with which the unresponded information cards are related.
1	2	3	4	5	6

.... UNIVERSITY ....

APPLICATION FOR DUPLICATE/ADVANCE MARKS SHEET/MIGRATION/ PROVISIONAL CERTIFICATE

PART-I

S. No.

Date ....

Name ....

Father's Name..

Name of Exam...
(with faculty)

Roll No./Seat No...

Enrolment/Registration No.................................

Name of the Exam Centre ....

Category-regular/Ex/
Non-collegiate ....

Received Rs.......................
(in words).......................
....

Vide Receipt No..................

Dated ....

Cashier
............University................

Signature of the applicant
Address in full...
....

Document(s) received

Signature of the
applicant.

....

PART-III

S. No.....................

Dated..................

Name of the candidate...

Application for duplicate/advance marks sheet./
migration/provisional certificate.

Signature of the
counter clerk

PART-II

S. No..................

Dated................

Name of applicant...

Application for duplicate/advance marks sheet/
migration/provisional certificate.

Name of section concerned.............................

National Seminar on Physical Fitness & Sports Standards in Universities

The Association of Indian Universities will organise, in collaboration with the Mohan Lal Sukhadia University, a National Seminar on Physical Fitness and Sports Standards in Universities on 9-10 May 1987 at Udaipur.

The climate generated by IX Asian Games in 1982 at Delhi had raised our hopes and it was expected that India was on the way to greater achievements in international sports. The subsequent developments, especially the poor performance of Indian sportsmen at the international competitions, have proved it otherwise. "What ails Indian Sports?" is being debated everywhere, and the urgency for improving standards in sports and physical fitness is realised in every quarter.

The National Policy on Education has also emphasised the need for making sports and physical education an integral part of the curriculum in schools and colleges. A nationwide infrastructure for physical education, sports and games should be built up into our educational edifice. What the country really needs is a system which can promote an integrated development of body and mind. One of our major weaknesses has been that the schools, colleges and universities have not played their roles effectively in this direction. Most of them lack resources, their infrastructure is inadequate or sub-standard and sports facilities are scarce. Indeed, sports appears to have been placed in the lowest priority in the total scheme of school and college education. The utter neglect of the physical efficiency of our youth in educational institutions and non-availability of resources for sports have been responsible for this sorry state of affairs. It is proposed to identify various problems which impinge upon the sports performance and to deliberate on issues that have significant bearing on mass awakening and motivation for promoting sports and physical education.

Themes

The deliberations at the Seminar will cover the following themes:

1. Sports Infrastructure in Rural and Urban Areas

The discussion will focus on the availability and requirement of sports facilities in different areas—urban and rural, humid and dry, plains and hills. The provision of minimum unit requirements of facilities, depending upon the popularity of various games and sports in the specific areas, will also be discussed.

2. Student Motivation and Incentives

To encourage mass participation of youth in sports activities, it is imperative to motivate them through a chain of incentives like scholarships, bursaries, freeships, and special diet allowances. The feasibility of making sports an academic discipline, preferential treatment in job opportunities and related question of raising the status of physical education would be debated.

3. Coaching and Competitions

For success in sports competitions, coaching plays a crucial role. The discussions under this theme would focus on the assessment of the present system of coaching for national and international competitions. The question of evolving a core curriculum for physical education, the standardisation of syllabi and its adoption throughout the country will be discussed. The scheduling of the domestic competitions would also be reviewed.

4. Linkages between Sports and General Education

The need for providing effective linkages between sports and general education on the one hand and sports activities in schools with the colleges/universities on the other, cannot be under-estimated. While the schools are primarily responsible for providing the basic inputs to the sports requirements of the higher level institutions, the latter are responsible for improving the efficiency and proficiency in sports in schools by way of providing highly trained instructors and coaches. Ways and means of establishing such linkages would be explored so that the goals envisaged in the New Educational Policy are realised.

5. Norms of Physical Fitness

A minimum level of physical fitness is necessary for any individual to effectively participate in any game or sports and, in the larger context, to be a good all-round student. The methods of improving general health and the question of specifying norms of physical fitness for different age groups of students and for various games will be debated. Modern concepts of sports science will also be discussed.

PROGRAMME

May 9, 1987 (Saturday)

Registration of Delegates	9.00 A.M.
Inauguration & Exhibition	10.00 A.M.
Session I	11.15 A.M.
Session II	2.30 P.M.

May 10, 1987 (Sunday)

Session III	9.00 A.M.
Session IV	11.15 A.M.
Session V	2.30 P.M.
Valedictory Function	5.15 P.M.

VENUE

The venue of the seminar will be Mohanlal Sukhadia University, Udaipur.

PARTICIPATION

Delegates from universities, colleges, organisations dealing with sports and physical education, Department of Youth Affairs and Sports, Netaji Subhash National Institute of Sports, Lakshmibai National College of Physical Education and Sports Authority of India are invited to participate in the seminar.

Name with designation and postal and telegraphic address of the sponsored delegates should reach the Convener not later than **31st March, 1987.**

EXHIBITION

An exhibition of literature on sports and physical education such as books, magazines, journals, charts, models and other materials which might present the recent advances in sports science and sports medicine will be organised on the occasion.

PAPERS

Papers, in duplicate, neatly typed on one side of the quarto bond paper in double space, not exceeding 2,500 words and accompanied by a summary in not more than 300 words, should reach the Convener latest by **31st March, 1987.** The papers should not have been published or presented at any previous seminar or conference.

The official language of the seminar will be English.

Further details can be had from the convener.

CONVENER

Shri G.S. Sivia
Deputy Secretary (Sports)
Association of Indian Universities
AIU House, 16 Kotla Marg
New Delhi - 110 002.
Telegram : "ASINDU"
Telephones 3312305, 3313390,
3312429, 3310059.

Examinations Sans Tension

(*Continued from page 1*)

(vii) A student could be allowed to appear for each paper/subject separately during different sessions of examinations. However, such students need not be allowed to go for higher studies.

(viii) There could be a provision for improving one's grade/score. But this will automatically cancel the earlier grade/score.

(ix) After all these options, if there are students who do not want to take the examination, they could be given certificates of registration after they have kept their terms. These students are also not allowed to go for higher studies.

Implementation of the options mentioned above might seem very expensive and time-consuming. Expenses can be minimised by charging special examination fees from those students who do not take the examination during the first session and those who take the examination in parts. This could also apply to students who want to improve their grades/scores. When a large sum of money is already being spent, it should not matter if a little more spending can buy peace and reduce tension on the campus. In fact the funds required to be spent on restoring damaged things during agitations could be utilized towards extra expenses during examinations.

In higher education, examinations need not be imposed on young men and women. It will be fair and proper to give them freedom to exercise their free will at least in the selection of dates of their examinations. It is high time we treated our young men and women as mature human beings capable of taking their own decisions with responsibility and dignity and save them from suffering agonies of examinations.

The focus of the proposed National Education Policy is on the learner, his needs and problems. A learner-centred education policy will have to pave the way to a 'learner-centred examination' in which the learner will play a major role in monitoring his own 'fate'. The present system of examination is the result of the 'teacher-dominated' approach to education in which the teacher dictated the terms. We are at the turn of the 21st century and the country is trying to cope with the transition in the field of education by launching a National Education Policy. At this juncture it is very relevant to think of a 'learner-centred' system of examination in higher education which will enable the learners to take their own examinations sans tension. ☐

LALIT NARAYAN MISHRA COLLEGE OF BUSINESS MANAGEMENT

MUZAFFARPUR

[**An Autonomous Institution Under University of Bihar**]

MBA ADMISSION 1987-89

Applications are invited for the admission to the two–year Master of Business Administration (MBA) Course of Bihar University.

ELIGIBILITY : Admission is open to Graduates belonging to any faculty Arts, Science, Commerce, Engineering, Medicine, Agriculture etc. Employed graduates having atleast two years experience in Public undertaking, Public Limited Companies or other such establishments of repute holding executive posts are eligible for admission provided they are sponsored by their employers for a period of two years and attach the certificate of sponsorship with the application for admission. Entrepreneurs engaged in Industries, must produce certificate of two years practical experience. Those whose application will not satisfy these conditions will be summarily rejected.

SELECTION PROCEDURE : Applicants will be selected on the basis of written examination followed by personality test. Sponsored candidates are exempted from appearing at the written examination. A limited number of applicants under the sponsored group will be called for interview for selection.

RESERVATION : Some seats are reserved for scheduled castes/tribes and girl candidates. Five seats are reserved for FOREIGN STUDENTS to be nominated by the Ministry of Education, Government of India, New Delhi, latest by **8th June, 1987**.

PROSPECTUS AND APPLICATION FORM : Are available from 12th January, 1987 on payment of Rs. 35/- at the College office on working days between 9.00 a.m. to 1.00 p.m. or by registered post on remittance through Bank Draft/Money Order for Rs. 40/- drawn in favour of the Director, Lalit Narayan Mishra College of Business Management, Muzaffarpur - 842 001. No claim for refund of money paid for forms and registration will be entertained.

LAST DATE FOR SUBMISSION OF : Completed application form with a registration fee of Rs. 50/- addressed to the ADMINISTRATIVE OFFICER-CUM-REGISTRAR, LALIT NARAYAN MISHRA COLLEGE OF BUSINESS MANAGEMENT, MUZAFFARPUR - 842 001, must reach the College on or before **13th March, 1987**.

WRITTEN TEST : Applicants having sent the completed application form must report at 9.00 a.m. on **29th March, 1987** for written examination of three hours duration to be held in the Bihar University as well as in the College Campus.

DIRECTOR

Agriculture—the Sheet Anchor of Progress

Hon'ble Shri Gurdial Singh Dhillon, Union Minister for Agriculture and Rural Development delivered the Convocation Address at the XVI Convocation of the Haryana Agricultural University. In a highly informative address, Shri Dhillon called upon the agricultural scientists to achieve a breakthrough in productivity, dovetail research programmes with land development strategies and strive for a more even and balanced distribution of agricultural growth to reduce regional disparities. Excerpts :

Agriculture continues to receive priority consideration in the planning process of the country. The agricultural growth during the Sixth Plan was very encouraging because the anticipated production targets were by and large achieved for foodgrains and several cash crops. Sugarcane output in the terminal year fell short of the target, though it was much higher in the earlier years of the Plan. A notable feature of agricultural production during the Sixth Plan was the limited impact of adverse weather in 1982-83 which implies a substantial improvement in our capacity to face aberrant weather conditions. However, the imbalance in production between rice and wheat and between cereals and pulses as also oilseeds continues. There are serious regional imbalances even in the impact of the green revolution in several states. Greater efforts are required for improving rice yields, particularly in the eastern regions, and for enhancing the productivity of rainfed and dryland agriculture.

While there is no denying the fact that agricultural production has increased considerably in India in the last two decades and prophets of doom who had predicted hunger, starvation and famine in India have been proved wrong; thanks to the combined efforts of the scientists, Lab-to-Land extension heirarchy and the toiling farmers. There are still areas in this field which would require our determined and earnest attention. In the last few years growth rate of production and especially productivity gives an impression that we have reached a plateau. I would like to impress upon our scientists to make concerted efforts and optimise their energy and research efforts to achieve a break through in productivity and production particularly in the case of dryland crops like coarse grains, pulses and oilseeds.

Shri G.S. Dhillon delivering the convocation address

While we are marginally surplus in cereals, we continue to be deficit in the case of oilseeds and pulses. Concerted efforts should be directed towards improving the yields of oilseeds and pulses, which should make these crops more competitive particularly with irrigated cereals like rice and wheat. This will not only improve the quality of diet for our growing populations but save precious foreign exchange being spent on import of these crops. We have also to be more conscious with regard to our higher cost of production compared with the corresponding costs of production in the developed countries. I am conscious of the various constraints pushing our costs but we will have to identify the production inputs, which have considerable scope for improving their efficiency which in turn can reduce the escalating cost of the production. In the modern competitive world if we have to survive we have to be conscious of the competitive costs in the international market. I am confident that these basic issues will receive our priority attention and consideration.

Today we cannot talk of agriculture in isolation. Rural development, energy consumption, ecology and environment, forestry and fisheries, all these are closely linked to agriculture. Equally important are the proper land use plans. This is so because the non-expandable land resources have to accommodate the competing demands for production of food, fodder, fibre and fuel, minerals, urbanisation, non-agricultural land use, etc., for the increasing human and animal population. It is estimated that in the year 2000 the human population in our country would be nearly one billion and the animal population will also have increased considerably. The per capita availability of land which was about 0.94 hectares in 1951 will decline to 0.33 hectare in the year 2000. Thus, the decreasing land : man ratio poses a great challenge for optimising the return from land resources for different purposes.

It is estimated that about 105 million hectares of cutivable lands and 8 million hectares of non-forests and non-agricultural lands are subject to various degrees of soil erosion. In addition, 43 million hectares of area has been degraded through waterlogging, salinity, ravines and shifting cultivation. An estimated six thousand million tonnes of soil are lost annually through erosion and degradation, along with plant nutrients ranging between 5.37 and 8.4 million tonnes. A primary concern of development should be to arrest further degradation of soil by proper land use and soil conservation methods and also to nurse back to health the degraded areas to ensure a highly productive agriculture.

Therefore, research activities for optimising production from rainfed farming, irrigated agriculture, and the non-farm land put to other uses including fodder and fuel will have to keep pace with the changing requirements for various commodities. Proper dovetailing of national research programmes and land development strategies will have to be ensured.

During the Seventh Five Year Plan, the pattern of resource allocation has been designed to ensure that the country will remain self-sufficient in food and that significant progress is made in increasing the production of vegetable oils, pulses and horticulture. As part of the strategy for a more regionally balanced agricultural development and production, special emphasis has been laid on increasing the productivity of rice in the Eastern States, as also on the development of dryland agriculture. The Plan also lays considerable stress on enhancing the productivity and income of the small and marginal farmers. The agricultural programmes of the Plan would greatly benefit from the creation of an additional irrigation potential of about 13 million hectares. Since variations in the rate of growth of agriculture are a major factor accounting for regional differences in the pace of development, the agricultural strategy of the Plan, with its emphasis on more even and balanced distribution of agricultural growth, will also help to reduce regional disparities.

I have taken this opportunity of placing some of my thoughts before you about the agricultural situation in the country at some length, because development in agriculture is the sheet anchor of our progress to eradicate poverty and to bring the fruits of planning to the door-steps of the most deprived and the most neglected sections of the society. I, therefore, consider it as our primary obligation to look for new techniques and strategies which will improve the quality of rural life on which the future of the country greatly depends. To the extent we contribute our might in this direction, we shall be building the India of tomorrow.

I learn from the report of the Vice-Chancellor that the University has released 65 high yielding disease-resistant varieties of cereals, pulses, oilseeds, sugarcane, forage and vegetable crops. This indeed is a significant achievement in itself. I have no doubt that the scientists of the University shall continue to show results which are of direct use and application to the farmers in the fields and, thus, contribute to the economic prosperity of the State.

Farming in Haryana is not only the main vocation of the people here, but its way of life. Over the years, farming in Haryana has undergone a sea of changes in all its aspects. Haryana's past has been glorious and dynamic, and so is its future. Alive to every change that goes to make today's Haryana bristling with social and economic development within a short span of 20 years, Haryana has been rightly described as the fastest moving state and a go-ahead state. That is why Haryana today is among the top contributors of foodgrains to the central pool. Agriculture in Haryana has been modernised. It has made rapid strides in modernisation of farm operations. There is a strong urge among the farmers of the State to adopt progressive farm practices and new seed varieties. It is the first State in northern India to have introduced crop insurance for the economic benefit of the farmers. The break-through achieved in agricultural production in the State is due largely to vastly improved and sophisticated irrigation system and its optimum utilisation. Haryana has placed the highest stress on modernising its irrigation system and improving the regulation efficiency, including the brick-lining of existing channels and water course to save precious water from seepage. The state has done equally well in the management of its livestock population.

The establishment of agricultural universities in India has been a land mark in the history of education in the country. It was the first serious attempt to link education with research and productivity. The agricultural university was designed to be the agent of the State Government in conducting research on all problems of relevance to agriculture, animal husbandry, fisheries and forestry and in this important respect, its charter differs from that of regular universities. In times to come, the agricultural universities shall play a leading role in taking the country forward to agricultural prosperity. As far as Haryana Agricultural University is concerned, its role in the development of Haryana agriculture is praiseworthy. ☐

Scientific Scenario in India

Delivering the second Indira Gandhi Memorial Lecture on 'The Scientific Scenario in India', organised by the Cochin University of Science and Technology, Prof. C. N.R. Rao, FRS, Director of the Indian Institute of Science Bangalore, bemoaned that the present atmosphere in the country is not conducive to the flourishing of scientific talent. He said that though there had been considerable national investment in science and technology, we could hardly claim that science had made a major mark in our society. At the level of the common man, we are yet to raise the level of understanding and appreciation of issues and problems of concern to our society. The scientific attitude was yet to be inculcated in a mojority of our people. We see very few peaks of excellence in science either at the institutional or individual level, he said.

Part of the problem was that people were lured away from science at a young age. A large number of talented young scientists had also migrated, in search of greener pastures abroad.

Another important factor that affected the quality of science was the absence of the right atmosphere for carrying out good scientific work, which depend on a number of aspects, like good administration, minimal bureaucracy, a proper reward system and other amenities for scientists.

To attract young talent to science, there was an imperative need to make science a more attractive profession and to provide a better atmosphere and improved amenities for young people to work in this country.

Attempts should be made to discover and nourish scientific talent from the school level. Sufficient opportunities should be provided to satisfy the scientific curiosity of young people and to encourage them not to lose their spirit of enquiry. Exposure of our scientists to the advances in scientific research being carried out elsewhere in the world was essential and funding in this regard had to be made part and parcel of the support for scientific research. Many young people seem to shun experimental research in physical sciences. Excellence in experimental research in physical sciences and engineering was more difficult because of the innumerable problems faced by experimentalists.

Prof. Rao felt that over-organisation of science in the country had discouraged individual initiative and the emergence of a large number of research groups. At least in basic sciences, outstanding work was ideally done in small groups with sufficient freedom to plan and carry out their work. It would be difficult for large institutions or laboratories to promote excellence unless they were organised in such a way that scientists still worked in small and autonomous groups.

Prof. Rao said quoting Harvard University President James Bryant, "there is only one proven method of assisting the advancement of pure science—that of picking men of genius, backing them heavily and leaving them to direct themselves".

Super Computer for IIT Kanpur

Indian Institute of Technology (IIT), Kanpur, which has played a key role in the utilization of computers in the simulating and solving the problems of the industry, will soon enter the era of super computers. Super computer, said Prof. A. K. Mullick, Director, IIT Kanpur, will be cluster of small computers required to solve the highly computational problems faced by the scientists and the students and cannot be solved by one computer.

Prof. Mullick said that the institute has also been selected as one of the centres for the computer network, which is highly technical and prestigious project of the country. In this project a network between the computers installed at selected centres will be established through satellite and any problem, which is highly computational, will be beamed through the satellite to the main centre and it be processed by the 'super-computer' at the main centre. The solution to the problem can be obtained vice versa. He said that the institute is desirous to set up a network between computers in the institute itself. The network will enable the scholars and the scientists to get the solution of their problems without much physical strain.

He said that the research in engineering, basic sciences, humanities and social sciences were being pursued with vigour. The institute had also undertaken some long-term projects in areas of computer-aided manufacturing, computer aided engineering, robotics, computer networking, water resources engineering, transportation engineering, VLSI design, computational linguistics, large-scale simulation and optimisation, monsoon physics, quantum chemistry, nuclear engineering and other subjects.

Fish and their Environment

A national symposium on "Fish and their Environment" was organised by the Department of Zoology, Gurukula Kangri Vishwavidyalaya from 15-18 December, 1986 under the directorship of Prof. B.D. Joshi, Head, Department of Zoology.

The objectives of the symposium were to know : (1) the latest rate/areas/mechanism of fish resource depletion; (2) the extent and ways of damage caused by parasitic infections, a variety of other pathogens and myriad types of effluents and toxic substances and their impact on various parameters; (3) the hydrobiological status of our aquatic systems at micro-environmental level due to pollution and anti-pollution activities/measures; and (4) the impact of present day environmental conditions on fish culture.

The symposium was inaugurated by Sri Sita Ram Nishad, State Minister for P.W.D. and Fisheries. Shri R.C. Sharma, I.A.S. (Retd.), Vice-Chancellor of Gurukula Kangri Vishwavidyalaya presided over the inaugural function. The Hon'ble Minister expressed his deep concern at the depletion of the economically and ecologically important fish fauna of our country due to over-exploitation and pollution. The Vice-Chancellor reminded the scientists of the importance of the hydrosphere and fish. He said that ecologically fish play an important role in the 'food-chain' in aquatic environment. Prof. H.R. Singh of Garhwal University, who delivered the keynote address, described the salient features of fish and its ecological importance in balancing the natural ecosystem.

Dr. Satyaketu Vidyalankar, Chancellor of the Vishwavidyalaya delivered the valedictory address. It was recommended that Gurukula Kangri Vishwavidyalaya should undertake fish-studies at P.G. level; the Govt./semi-Govt. agencies and universities should be given more responsibilities to improve the aquatic system; and special attention be paid by Fisheries Departments of different states for halting the depletion of fish resources.

Over 170 papers were presented and read at the ten different sessions in which about 100 scientists drawn from different universities and colleges participated.

Cash Awards for Scientific Works in Hindi

Government of India in the Department of Science and Technology have decided to implement a scheme of awarding cash prizes to the authors of original works in Hindi in the four branches of Science and technology, viz., Engineering Sciences, Physical Sciences, Life Sciences and Chemical Sciences. Known as "Department of Science and Technology Award Scheme", it aims at encouraging original works in Hindi in scientific subjects.

The scheme becomes operational from 1987 and carries a first prize of Rs. 15,000. The second and third prizes offered are Rs. 10,000 and Rs. 5,000 respectively. It is open to Indian citizens only. However, persons employed in scientific departments, viz., DST, DOE, DOD, DOEn, DAE, DOS, CSIR DBT, etc., are not permitted to participate in the scheme.

Further details about the scheme may be obtained from the Joint Secretary (Admn), Department of Science and Technology (Ministry of Science and Technology), Technology Bhavan, New Mehrauli Road, New Delhi - 110016.

JNU Attracts Scholars from 25 Countries

Sixty-one scholars belonging to 25 countries are on the rolls of Jawaharlal Nehru University. The countries include developed countries like USA, UK, Japan, Holland, Denmark and developing countries like Kenya, Bangladesh, Thailand, Syria, Uganda, Nepal, Malaysia, Iraq, Iran, Indonesia, Egypt and Tanzania. Of the 61 scholars, 39 are men and 22 are women students. Of these 33 are pursuing their M. Phil/Ph.D. courses while 20 students are doing their MA/M.Sc./MCA.

Delhi Varsity Honours President Garcia

Delhi University held a special Convocation to honour His Excellency Dr. Alan Garcia, President of Peru with an honorary Degree of Doctor of Laws (LLD). The degree was conferred on him at a colorful function held at Vigyan Bhawan, New Delhi on 27 January 1987. Shri R. Venkataraman, Vice-President of India and Chancellor of Delhi University presided. The Prime Minister Shri Rajiv Gandhi also graced the occasion.

Educational Films for National Telecast

Banaras Hindu University is making a series of audio-visual films for the University Grants Commission (UGC) to be telecast nationally by Doordarshan. Prof. C.M. Pathak, who is incharge of the project said that the shooting of the first two parts of his first film 'Optical Alignment' has already been completed at the audio-visual centre of the Roorkee University. The first part of the film shows the ill effects of dirt, dust and finger prints on optical components.

Prof. Pathak feels that the films would go a long way to give useful information to the teachers and the students at the intermediate and graduate levels.

He, said the universities had been adequately funded by the UGC for the production of educational video films which were screened and approved by an all-India committee for national telecast.

Nalanda Open University

The Government of Bihar has promulgated an ordinance to set up an open university at Nalanda, the centre of higher learning in ancient India. The University would be named as 'The Open University, Nalanda'. The State Government would provide Rs. 1 crore in 1987-88 for the establishment of the Open University.

The State Government proposes to seek Union Government's permission to name the open university after Mrs. Indira Gandhi.

JNU Scholars Win TV Contest

Priyadarshini Mukherjee and Sukanya Sen of the Jawaharlal Nehru University won the first and second prize in the Chinese Language Contest organised by Shanghai TV Station. Millions of Television viewers of Shanghai, the biggest city in China, were all praise for the Indian scholars.

Polish Degree Recognised

The Government of India has decided to recognise all Master's programmes of 5-year duration after the XII stage of schooling awarded by the Technical University of Mining and Metallurgy, Cracow (Poland) as equivalent to the first degree of Indian Universities in the concerned subjects.

The Department of Education in the Ministry of Human Resource Development has taken this decision on the basis of the recommendations of the Board of Assessment for Educational Qualifications for the purpose of recruitment to superior posts and services under the Central Government.

News from Agril. Varsities

New Radish Variety

A new radish variety 'Punjab Ageti' developed by Dr. J.S. Hundal, Associate Professor of Vegetables and Dr. B.S. Sukhija, Assistant Vegetable Breeder of the Department of Vegetable Crops, Landscaping and Floriculture, Punjab Agricultural University, has been released by the Punjab State Variety Approval Committee for general cultivation during summer season in Punjab.

This variety has been developed from a cross of Punjab Sufed x Local Red varieties. It has large roots (25.6 cm) and medium thickness (2.86 cm). Root colour in the upper half is red and in the lower half white with tapering end. Average root yield is 140 qt/acre. It has good seed producing ability under Punjab conditions.

New Farm Varsity for Madhya Pradesh

A new agricultural university, the second in Madhya Pradesh, was inaugurated by the state Chief Minister, Mr. Motilal Vora, at Raipur on 20 January 1987. Speaking on the occasion, the Chief Minister observed that the condition of the economically weak farmers in the Chhatisgarh region could be improved only if efforts were made to help them take to double cropping and raise the yield.

It is proposed to name the new university after Mrs. Indira Gandhi. Three colleges of agriculture, dairy technology and veterinary science situated at Raipur, Anjora and Durg respectively in the Chattisgarh region will come under the new university.

News from Abroad

Indo-German Co-operation in Biotechnology

A Scientific delegation from India visited the Federal Republic of Germany to participate in a Workshop on Biotechnology in Tuebingen and decide on specific programmes to be undertaken for collaboration under the aegis of the Indo-German Agreement on Science and Technology concluded in 1974.

The eight-member team from India was headed by Dr. S. Ramachandran, Secretary, Ministry of Science and Technology, Government of India, and the visit was in pursuance of the work done at two earlier meetings in India last year when delegations from the field of biotechnology in the Federal Republic looked closely at possible programmes for mutual collaboration. The German delegation at the Tuebigen meet was led by Prof. Dr. E. Reinhard of the University of Tuebingen, whose fourteen-member team had in-depth discussions with their Indian counterparts and exchanged several proposals for consideration, in the framework of existing arrangements i.e. KFA-CSIR, KFA-DAE, and GSF-ICMR.

The deliberations concluded successfully with the identification of four major areas for project implementation :

- *Plant tissue culture and plant biotechnology.
- *Microbial genetic engineering and molecular immunology.
- *Bioprocess engineering.
- *Vaccine and Parasitic Immunology.

Project work will commence in early 1987 and a tremendous potential has been seen in the scope of the work selected.

The Indian scientists later visited several laboratories and research institutions to have a first-hand acquaintance with developments in biotechnology in the Federal Republic, also holding discussions with government officials concerned.

[*Courtesy* : German News Vol. XXIX, No. 1].

News from UGC

INSAT-1B Programme of UGC

Between 16th and 28th February, 1987 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

16-2-87

"Influenza Virus—Vaccine Manufacture and Control"
"Microscope-I"
"Digestion"

17-2-87

"Early Earth Evolution"
"The Rajput Monuments"

18-2-87

No Telecast

19-2-87

"Introduction to Air-Conditioning"
"Astronomy before Technology: Where the Sun was Captured"
"Colour and Light: An Introduction"

20-2-87

"COBOL — A Review"
"Solar Energy: The French Way"

21-2-87

"Note taking and Note making"
"Traditional Handicrafts in Modern Living"
"In Partnership with Nature"

22-2-87

No Telecast

23-2-87

"Echocardiography of Foetal Heart"
"Microscope-II"
"12 Hours of Hope"

24-2-87

"Geochemical Mapping"
"Discovering Snakes"
"Man and Land"

25-2-87

"Your Ocean and Mine"
"A Return to Nature"
"Flower"

26-2-87

"Our World"
"Astronomy Before Technology—The Dictate of the Stars"
"Spring in Sikkim"

27-2-87

"Communication—A Revolution"
"Remote Sensing—New Angle in the work"

28-2-87

"To be announced"
"Leadership"

CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY AND EXAMINATIONS

Applications are invited from College/University teachers for admission to Correspondence Courses in Evaluation Methodology and Examinations at Basic Level, Intermediate Level and Advanced Level/Special Professional Course. The duration of each of the three courses is six months. A personal 'Contact Programme' for three days is planned for each of the three courses. Universities/Institutions sponsoring candidates can meet the registration/course fees from out of unassigned grants by UGC.

Request for prospectus and application form accompanied by a crossed Indian Postal Order for Rs. 10/- drawn in favour of the Secretary, Association of Indian Universities and a self addressed stamped envelope (Re. 1/-) should reach the undersigned. Last date for receipt of application is **15th March** for non-sponsored and **26th March, 1987** for sponsored candidates.

Project Director (Exam.)
Association of Indian Universities,
AIU House, 16 Kotla Marg,
New Delhi - 110002

Sports News

Universities Teams for National Championships

Rowing

The Indian Universities team for the National Rowing Championships being organised by Maharashtra Rowing Association at Pune from Feb. 20 to 23, 1987, was selected at the selection trials organised at Poona University on Feb. 14 and 15. The team will undergo training at Pune before participating in the National Championship. Prof. S. Palshikar, the veteran coach-cum-administrator, will supervise the training of the Indian Universities Team.

Cricket (Women)

Junior National Cricket Championship for girls under 19 will be conducted by the Kerala Women Cricket Association at Kottayam from Feb. 20 to March 5, 1987. Indian Universities' Junior Cricket Team is being projected to participate in the Championship. The three day selection trials for picking up the varsities team were held at Kerala University, Trivandrum on Feb. 11-13, About 70 players from various universities participated in the selection trials.

A Coaching Camp for the selected team has also been arranged at Kerala University, under the supervision of former Ranji Trophy player, Mr. Nazmul Hussain, Cricket Coach of Sukhadia University, Udaipur.

National Cross Country Championship

Cross Country running has been included in the Inter-University Sports Calendar with effect from the current academic session. The first Inter-University Cross Country Meet was organised at Haryana Agricultural University, Hisar on 18 October 1986. The following team selected on the basis of performance at the Inter-University Meet represented Indian Universities in the National Cross Country Championship organised by the Maharashtra Amateur Athletic Association on 13 February, 1987.

Men

Ramesh Rawat (Garhwal); Y.B. Khatke (Shivaji); Rajinder Kumar (Guru Nanak Dev); Jagdish Singh (Punjabi); Tarlochan Singh (Panjab); Sukhwinder Singh (Punjabi); Balkar Singh (Punjabi); Yashwant Singh (Garhwal); Narinder Singh (Punjabi).

Women

N.S. Jadhav (Shivaji); Poonam Taneja (Maharshi Dayanand); Charulata Naigaonkar (Nagpur); Rekha Rani (Delhi); Jogindroo (Guru Nanak Dev); Manjeet (Guru Nanak Dev).

Mr. H.L. Suri, a former Olympian, accompanied the team as the Coach.

ASSOCIATION OF INDIAN UNIVERSITIES

AIU HOUSE, 16 KOTLA MARG,
NEW DELHI-110002

Applications from Indian citizens for the following posts are invited in the prescribed form available on payment of Rs. 2/- from the Office of the Association of Indian Universities, 16 Kotla Marg, New Delhi-110002.

1. **Research Officer :** (One) : Scale Rs. 1100-1600.
   "A first class post-graduate in Sciences, Mathematics or Statistics with at least five years experience of research in the area of examinations in colleges/universities."
   Desirable : Good knowledge of computer applications with experience in computerisation of examinations and university administration.
2. **Research Officer :** (One) : Scale Rs. 700-1300 (Temporary).
   Candidates should have first or high second class Master's degree in Economics or in Social Sciences with at least 5 years' experience in educational research. Preference will be given to candidates in the area of Economics of Education.
3. **Research Associate:** (Two) : Consolidated salary of Rs. 2000/- p.m. Project posts, temporary for one year.
   "Candidates must have good academic record with 1st or high 2nd Class Master's degree in Education or Social Sciences and should have done independent work in the field of Economics of Education".
4. **Research Assistant :** (One) revised scale Rs. 1400-40-1800-EB-50-2300.
   "Candidates should have first or second class Master's degree in Social Sciences preferably in Economics with atleast 2 years experience in educational research. Candidates having Mathematics/Statistics/Economics at graduate level as optional subject will be preferred".
5. **Junior Steno :** (Two) : Project posts, temporary for one year.
   Higher Secondary with a minimum speed of 80/40 w.p.m. in Shorthand/typing. Consolidated salary Rs. 1200/-p.m.
   Desirable : Atleast two years experience in a reputed organisation.

For posts at Sl. No. 1 and 2 revised Govt. of India scales will be available as and when Govt. orders are issued.

All posts (except project posts) carry usual allowances generally at the Central Govt. rates. Relaxation in any of the requirements may be made in exceptional cases. The Association reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant. Canvassing in any form by or on behalf of a candidate will be a disqualification.

Applications complete in all respects should reach the office by **9th March, 1987.** Applications received after the last date or without complete information may not be entertained. SC/ST/Ex-servicemen will be given preference.

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
February 20-22, 1987	**International Conference on Role of Universities in the Strategies for Health for All by 2000 A.D.**	**To focus on the role of the Universities in achieving Health for All (HFA) by 2000 A.D.**	**Mangalore University in collaboration with Kasturba Medical College, Manipal and International Medical Sciences Academy, New Delhi.**	**Dr. A Krishna Rao Co-ordinator, Conference on Role of Universities for HFA by 2000 A.D., Department of Medical Education Manipal-576119.**
February 23-25, 1987	Seminar on Dimensions of Discourse Analysis	To take stock of the state of Art in discourse studies	Central Institute of Indian Languages, Mysore (Seminar to be held at ERLC, Bhubaneswar, Orissa).	(i) Shri Ranjit Singh Rangila, Central Institute of English, Manasgangotri Mysore-570006; (ii) Dr. A.R. Pradhan, ERLC, Bhubaneswar.
February 23-27, 1987	Short term Course on Application of Digital M.S.S. and Thematic Mapper Data for Quantification of Agricultural and Forest Resources.	To acquaint the participants with the techniques of Image Processing and Digital Analysis of Landsat Data with special emphasis on the application of techniques to the fields of Water Resources, Pedology, Forestry, Earth Sciences and Mineral Resources.	Centre of Studies in Resources Engg., IIT, Bombay.	Dr. T.V. Pavate, Chief Project Engineer, Training Extn. & Project Cell, R.S.D. No. VI, C.S.R.E., Indian Institute of Technology, Powai, Bombay.
February 25-28, 1987	Workshop on Structures for Nuclear Power Reactor Technology	To provide a forum to take stock of the present knowhow in various civil and structural engg. aspects of nuclear power plant construction and to project the future needs for Research and Development in this area.	Department of Civil Engg., IIT, Madras.	The Coordinator, SNUPORT-REDECC 1987, Structural Engg. Laboratory, Department of Civil Engg., Indian Institute of Technology, Madras.
March 2-5, 1987	Seminar on Recent Advances in Concrete Construction	To provide an opportunity for exchange of experience amongst practising engineers, consultants, research workers and academics and to guide the research and development activities in the area of concrete construction.	Department of Civil Engg., IIT, Madras.	The Coordinator, SNUPORT-REDECC 1987, Structural Engg. Laboratory, Department of, Civil Engg., Indian Institute of Technology Madras.
May 9-10, 1987	**National Seminar on Physical Fitness and Sports Standards in Universities**	**To identify various problems impinging upon sports performance and to deliberate on issues having significant bearing on mass awakening and motivation for promoting sports and physical education.**	**Association of Indian Universities (AIU) in collaboration with Mohanlal Sukhadia University, Udaipur.**	**Shri G.S. Sivia, Dy. Secretary (Sports), Association of Indian Universiies, AIU House, 16 Kotla Marg, New Delhi - 110002.**

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. More, S.B. *Approximate solutions of boundary layer equations in porous media*. Shivaji. Dr. B.B. Waghmode.
2. Patil, Prataprao Abasaheb. *A study of some integral transforms of generalized functions and their properties*. Shivaji. Dr. M.S. Chaudhary.
3. Saxena, Snigdha. *Boundary layer theory*. BHU. Prof. K. Lal.
4. Tekale, B.K. *Distributional aspects of some integral transformations*. Shivaji. Dr. M.S. Choudhary.
5. Thakur, Chandreshwar. *Fluid mechanics*. BHU. Dr. R.B. Mishra.

Physics

1. Bijay Prakash. *Order and disorder phenomena*. Delhi. Dr. Ravinder Nath.
2. Chakraborty, Basudeb. *Synthesis and characterisation of exotic materials*. BHU. Dr. A.K. Singh and Prof. O.N. Srivastava.
3. Chakraborty, Bishwajit. *Under water acoustics array*. BHU. Dr. K.K. Dey and Dr. E. Desa.
4. Choudhary, Anunay Kumar. *Study of astrophysical plasma configuration*. Delhi. Dr. M.K. Das and Prof. J.N. Tandon.
5. Dixit, Ved Prakash. *Semiconducting materials*. BHU. Prof. R.S. Srivastava.
6. Jha, Krishna Kr. *A comprehensive study of direct photon production in hadron induced collision*. Delhi. Dr. R.K. Shivpuri.
7. Kulvinder Singh. *Study of polytypism in crystals*. Delhi. Dr. G.G. Trigunayat.
8. Malik, Anup. *Phase transition in a highly clause medium*. Delhi. Dr. J.D. Anand.
9. Mandal, Pranab Ananda. *Growth synthesis and characterisation of alloys and chalcopyrite semiconductors*. BHU. Prof. O.N. Srivastava and Dr. A.K. Singh.
10. Mitra, Harishikesh. *Studies on mosfet and misfet*. BHU. Dr. D.P. Singh and Dr. B.B. Pal.
11. Mollikutty, O.J. *Magneto-rotating astrophysical plasma*. Delhi. Dr. J.N. Tandon and Dr. M.K. Das.
12. Pandey, Binod Kumar. *Electrical properties of metal, insulator semiconductor structure*. BHU. Prof. R.S. Srivastava.
13. Paramjeet Kaur. *Electron correlation in condensed systems*. Delhi. Dr. S.P. Tiwari.
14. Saurabh Prasad. *Study of phase transition at elevated pressures in polymeric materials*. Delhi. Prof. P.C. Jain.
15. Saxena, Ajay Kumar. *Investigations of growth, synthesis and photovoltaic behaviour of chalcopyrite semiconductors*. BHU. Prof. O.N. Srivastava.
16. Sethia, Ashok. *Electronic states in deformable medium and related polymer problems*. BHU. Prof. Y. Singh.
17. Sharma, Ram Jiwan. *Laser spectroscopy studies of molecules*. BHU. Prof. D.K. Rai.
18. Singh, Sheo Kumar. *Few body dynamics*. BHU. Prof. S.N. Mukherjee.

19. Singh, Udai Pratap. *Solid electrolytes.* BHU. Dr. R.P. Singh and Dr. P.N. Gupta.

20. Sinha, Jaydeep Kumar. *Laser induced phenomena in molecules.* BHU. Prof. D.K. Rai.

21. Sinha, Sanjay Kr. *Study of compressibility and viscosity of liquids at high pressures.* Delhi. Dr. V.S. Nanda.

22. Tangirala, Rama Seshu. *Air pollution dispersion role of the atmospheric motions.* Delhi. Dr. V.B. Bhatia and Prof. B.P. Padmanabhamurthy.

23. Tripathi, Awadhesh Chandra. *Semiconductor electrode-electrolyte interface studies.* BHU. Dr. R.P. Singh.

24. Vinod Prasad. *Application of '1/N' expansion in quantum theory.* Delhi. Dr. S.N. Biswas.

25. Yadav, Ramesh. *Phase transition studies in polymeric and non-polymeric materials at elevated pressures.* Delhi. Prof. P.C. Jain.

Chemistry

1. Abbasi, Mohammad Abul N. *Effects of substituents on the kinetics and mechanism of the oxidation of substituted phenols by thallium (III). Devi* Ahilya. Dr. B.K. Maheshwari.

2. Abraham, Mariamma. *Isotope exchange reaction.* BHU. Dr. R. Tripathi.

3. Apte, Dhanashri. *Synthesis, structure, bonding and reactivity of thionitrosyl, thionitro and nitrosyl complexes of ruthenium.* Devi Ahilya. Dr. K.K. Pandey.

4. Chaubey, Chaturbhuj. *Structural studies on copper (II) and nickel (II) complexes with nitrogen containing ligands.* HS Gour. Dr. Gopal Narayana.

5. Chaurasia, Brij Nath Prasad. *Stereochemical studies through NMR spectroscopy.* BHU. Prof. S.M. Verma.

6. Choudhary, Krishna Chandra. *Effect of substituents on the kinetics and mechanism of the oxidation of substituted phenols by chloramine-T.* Devi Ahilya. Dr. R.L. Yadav.

7. Desai, Kanchan Pradeep. *The role of trace impurities in solid state and electrochemistry.* Shivaji. Dr. D.S. Ambardekar.

8. Dhaneshwar, Sunil Rajaram. *Synthesis and anthelmintic activity of some mannich bases of benzimidazoles.* Devi Ahilya. Dr. P.V. Khadikar and Dr. S.C. Chaturvedi.

9. Diwan, Subodh. *Oxidation kinetics of aromatic rings by peroxydisulphate catalysed by silver (I).* HS Gour. Dr. G.L. Agarwal.

10. Ghosh, Sudipta. *Polymer chemistry.* Delhi. Dr. S.K. Chatterjee.

11. Jahromi, Mohammad Ali Farboodniey. *Organic synthesis studies in N-substituted iminlo.* BHU. Dr. K.N. Mehrotra.

12. Jain, Arun Kumar. *Synthesis of new heterocyclic compounds and to evaluate their biological activity.* HS Gour. Dr. S.K. Srivastava.

13. Jain, Pradeep Kumar. *Electrometric determination of some 'D and F' block elements with reagents of analytical importance.* HS Gour. Dr. K.S. Pitre.

14. Jain, Rakesh. *Studies on natural products.* HS Gour. Dr. S.C. Garg.

15. Jain, Sunanda. *Mixed ligand complexes of transition metals with amines and other selected 'N' containing ligands.* HS Gour. Dr. O.P. Srivastava.

16. Kathal, Mahesh Kumar. *Studies on coordination compounds of metals with selected organic ligands.* HS Gour. Dr. R.K. Gautam.

17. Khare, Indumati. *Studies on some indigenous plant constituents.* HS Gour. Dr. S.P. Shrivastava.

18. Koshy, Suja. *Chemical effect of glow discharge electrolysis.* BHU. Dr. S. Sengupta.

19. Kothari, Ajit Singh. *Kinetics and mechanism of oxidation of some aliphatic aldehydes by thallium (III).* Devi Ahilya. Dr. R.L. Yadav.

20. Labhsentwar, Nitin Kumar. *Ion exchange and adsorption properties of some calcium silicate hydrates.* HS Gour. Dr. O.P. Shrivastava.

21. Lal, Lalji. *Micronutrient glasses.* BHU. Dr. Dharam Singh.

22. Lawrence Masihlal. *Chemical study of some Indian medicinal plants.* HS Gour. Dr. V.K. Saxena.

23. Mathew, Mary. *Chemistry and characterization of organic eutectics.* BHU. Dr. U.S. Rai.

24. Mishra, Sarika. *Studies on coordination compounds formed with some metals and sulpha drugs.* HS Gour. Dr. R.K. Gautam.

25. Nakhare, Seema. *Chemical and pharmacological studies of plant products.* HS Gour. Dr. S.C. Garg.

26. Namdev, Rajendra Prasad. *Biomedical diagnosis of intra-cellular and extra-cellular human body fluids.* HS Gour. Dr. K.S. Pitre.

27. Pathak, Vandana. *Studies on water pollution in some coal mining areas of M.P.* HS Gour. Dr. A.K. Banerjee and Dr. J.P. Shrivastava.

28. Patil, S.R. *Electroluminescent properties of some organic compound.* Shivaji. Dr. V.S. Kulkarni.

29. Porwal, Premlata. *Vibrational spectra and conformational analysis of some polyatomic molecules.* Devi Ahilya. Dr. R. Prasad.

30. Rewari, Sujata. *Synthesis, spectral studies and reactivity of disulphiodothionitrato and nitrosyl complexes of osmium and rhodium.* Devi Ahilya. Dr. K.K. Pandey.

31. Roy, Anila. *Phytochemical studies of some Indian medicinal plants.* HS Gour. Dr. R.N. Yadava.

32. Sadique, Mohammad. *Biomimetic chemistry with emphasis on lipophilization and membrane transport approaches.* Devi Ahilya. Dr. A.V. Bajaj.

33. Salim Ahmed. *Study of coordination compounds of some selected metal ions.* HS Gour. Dr. Farid Khan.

34. Sapre, Nitin S. *Studies on metal salicylhydroxanates.* Devi Ahilya. Dr. P.V. Khadikar.

35. Singh, Navita. *Some recent trends in electro analysis.* BHU. Dr. Dharam Singh.

36. Singh, Rajkumar. *Coordination chemistry.* HS Gour. Dr. M.C. Saxena.

37. Singh, Wairokpam Rameshore. *Studies on corrosion of metal alloys in agro organic solvents.* BHU. Dr. R.N. Singh.

38. Sisodia, Farhana. *Preparation and studies of new molecular sieves.* HS Gour. Prof. S.P. Banerjee.

39. Srivastav, Kamal Kumar. *Stereochemical studies by NMR spectroscopy.* BHU. Prof. S.M. Verma.

40. Sudhanand Prasad. *Synthesis of amino acid and related compounds.* BHU. Dr. R. Balaji Rao.

41. Tewari, Sharad Kumar. *Activation of carbonyl sulphide, carbon disulphide and carbon, dioxide with transition metal comlexes.* Devi Ahilya. Dr. K.K. Pandey.

42. Tiwari, Swapna. *Mechanistic studies on pyridinium chlorochromate oxidation of some organic compounds.* HS Gour. Dr. G.L. Agarwal.

43. Trivedi, Piyush. *Synthesis of some substituted 9-acridones, their mannich bases and anti-microbial activity.* Devi Ahilya. Dr. S.C. Chaturvedi and Dr. P.V. Khadikar.

44. Varkey, Leelamma. *Some studies on chemistry of organic eutectic and charge transfer complience.* BHU. Dr. U.S. Rai.

45. Yadav, Sudarshan Singh. *Studies on natural products and their electrochemical transformation.* BHU. Dr. R.A. Mishra.

Earth Sciences

1. Sareen, Basant Kumar. *A study of the river basins of Western India.* Delhi. Prof. S.K. Tandon.

Engineering and Technology

1. Das, Bijan Behari. *Microprocessor based pulse frequency/pulse width modulated digital servos.* Kerala. Dr. K.A. Muraleedharan.
2. Narasimha Rao, S.L. *Microwave semi-conductor devices.* Delhi. Dr. O.P. Srivastava.
3. Rattan, Virender Kumar. *Enthalpies of mixing of organic liquid mixtures.* Panjab. Dr. K.S.N. Raju.
4. Sharma, Sanjay. *Transport properties of thin films.* Delhi. Dr. S.N. Tripathi.

BIOLOGICAL SCIENCES

Anthropology

1. Tiwary, Manju. *Stability study of some polymorphic enzymes in various post mortem non fluid body tissues under varied conditions of storage and preservation and their relationship with time of death and cause of death.* Delhi. Prof. I.P. Singh.

Marine Biology

1. Laila Beevi, A. *Studies in isopode fish parasities of Kerala and environs.* Kerala. Dr. P. Natarajan.
2. Rekha, R. *Studies on the physiology of reproduction and growth of fresh water cat-fishes of the genus mystus.* Kerala. Dr. P. Natarajan.
3. Samuel, Susan K. *The biocoenosis of Salvonia and Eichernia along the South-West Coast of India.* Kerala. Dr. S.D. Rita Kumari.
4. Sherly, P.S. *Studies on fish brain in relation to feeding.* Kerala. Dr. P.K. Abdul Aziz.

Biochemistry

1. Bhargava, Sangeeta. *Molecular analysis of mycobacterial genome.* Delhi. Dr. A.K. Tyagi.
2. Katiyar, Sadhana. *Salt stress effects on metabolism of rice.* BHU. Dr. R.S. Dube.
3. Mittal, Renu. *Metabolism of germinating rice seeds under saline stress.* BHU. Dr. R.S. Dube.
4. Moghadam, Mehdi Forouzandeh. *Regulation and mechanism of action of enzymes.* BHU. Dr. P.K. Srivastava.

Botany

1. Bharati, Anjali. *Taxonomic and biochemical studies on some thermal cyanobacteria.* BHU. Prof. H.D. Kumar and Dr. A. Vaishampayan.
2. Dwivedi, Padmapati. *Effects of metabolic inhibitors and mutagens on cyanobacterial cyanophycin granules.* BHU. Prof. H.D. Kumar.
3. Jacob, Benny. *Cytogenetic studies of grasses of the subfamily panicoideae tribes, andropogoneae and maydoae.* Kerala, Dr. J. Christopher.
4. Mahendru, Rajni. *Bacterial genetics-intergenetic fluids transfer and gene expression.* Delhi. Dr. (Mrs.) Sheela Srivastava.
5. Najma Khanam. *Degradation of Obra-Renukoot Singrauli areas and its impact on ecosystem.* BHU. Dr. (Mrs.) M. Agrawal.
6. Raj Kumar. *Environmental degradation of Obra-Renukoot area and its effect on natural and derived ecosystems: Analysis of structure and functioning of water bed and water bodies.* BHU. Prof. R.S. Ambasht.
7. Rathore, Devendra Singh. *Lipid metabolism in some microalgae.* BHU. Prof. H.D. Kumar.
8. Ravichandran, T.V. *Plant growth and development.* Delhi. Dr. H.Y. Mohan Ram.
9. Samantarai, Anjali Kumari. *Cytology and cytogenetics of algae.* BHU. Dr. B.R. Chaudhary.
10. Sasikala, K.S. *Cytogenetical, ecological, taxonomic and phylogenetic studies of some grasses of South India.* Kerala. Dr. J. Christopher.
11. Thakur, Sangeeta. *Microbial ecology and plant pathology.* BHU. Dr. B. Rai.
12. Tiwari, Sadhana. *Ecology studies of two common plants from grasslands.* BHU. Dr. H.R. Sant.
13. Uma Devi, A.V. *Genetics of lactic acid bacteria: Microbial* genetics. Delhi. Dr. (Mrs.) Sheela Srivastava.
14. Yadav, Janardan. *Biological implication of soil solarization.* BHU. Dr. D.K. Arora.

Zoology

1. Agarwal, Mohini. *Studies on oxygen consumption of adrenal of rat and its correlation with cholesterol total lipids and electrolyte concentration under the influence of amino acids.* HS Gour. Prof. R.K. Shrivastava.
2. Agrawal, Rajiv. *Toxicological effects of pesticides on the digestive tract and associated glands in the rat.* HS Gour. Dr. Y.N. Sahai.
3. Baroniya, Arvind Kumar. *Toxicologicql study of some pesticides on mammals.* HS Gour. Dr. Y.N. Sahai and Dr. J.D. Sharma.
4. Bhatt, Renu. *Neuro endocrine control mechanism for circannual cycles in birds.* BHU. Dr. C.M. Chaturvedi.
5. Chaurasia, Prabha. *Changes induced by chemosterilants in some insect pest tissues.* HS Gour. Dr. Smita Banerjee.
6. Das, Parimal. *Studies on mammalian sex chromosomes.* BHU. Dr. Rajiv Raman.
7. Das, Rekha. *Substitution of strontium and barium in the bone mineral.* Sambalpur. Dr. P.M. Patel and Dr. B.R. Nanda.
8. Dubey, Anupma. *The study on the structure and behaviour of chromosomes in the seasonal beetles of the order, coleoptera with special reference to the effects of some insecticides and pesticides.* HS Gour. Dr. (Smt.) Sunita Bhargava.
9. Duggal, Satvinder Singh. *Endocrine control of reproduction in a teleost fish.* HS Gour. Dr. (Smt.) S. Sahai.
10. Gopeshwar Narayan. *Studies on mammalian meiosis.* BHU. Dr. Rajiv Raman.
11. Gupta, Badri Prasad. *Studies on oxygen consumption of the rat liver and its correlation with cholesterol and total lipids contents under the influence of NaCl concentration and amino acids.* HS Gour. Prof. R.K. Shrivastava.
12. Gupta, Kishore Kumar. *Studies on the geographic differentiation of species and chromosome inversions in Indian populations of drosophila.* BHU. Dr. J.P. Gupta.
13. Gupta, Rajani. *Effect of some pesticides on the brain of fish.* HS Gour. Dr. Y.N. Sahai.
14. Guru, Uma Shankar. *Biology and ecology of anopheles mosquitoes causing malaria, their breeding grounds and microbiological control.* HS Gour. Dr. S.K. Tiwari.

15. Jain, Abhinandan Kumar. *Studies on the histopathological changes in the tissues of a fish exposed to cadmium and lead and the influence of zeolites over them.* HS Gour. Dr. A.K. Raizada.

16. Jain, Akhilesh Kumar. *Control of mosquitoes (adult) through natural products.* HS Gour. Dr. D.K. Saraf.

17. Jain, Kalpana. *Histopathological, histochemical and cytological studies on the effect of some insecticides on the reproductive physiology of some insects.* HS Gour. Dr. (Smt.) Mangla Bhide.

18. Jain, Sadhana. *Senescence and metabolism in Dysdercus similis Freeman (Hemiptera, pyrrhocorides).* HS Gour. Dr. Smita Banerjee.

19. Kashyap, Neelam. *Studies on oxygen consumption of pituitary of rat and its correlation with cholesterol, total lipids and electrolyte concentration under the influence of amino acids.* HS Gour. Prof. R.K. Shrivastava.

20. Kesherwani, Bharat Kumar. *Studies on the role of microorganism in degradation of chlorinated hydrocarbon insecticides in soil.* HS Gour. Dr. U.S. Gupta.

21. Kulshrestha, Alka. *Synthetic detergent toxicity and its effect on fish skin defence mechanisms.* BHU. Dr. A.K. Mittal.

22. Maheshwari, Nand Kishore. *Control of mosquitoes (larvae and pupal stages) by bio-products.* HS Gour. Dr. D.K. Saraf.

23. Mishra, Rekha. *A study of toxic effect of some pesticides on mammals.* HS Gour. Dr. Y.N. Sahai and Dr. J.D. Sharma.

24. Nahar, Anita. *Study of the seasonal changes in anion and cation concentration in fish.* HS Gour. Dr. D.K. Saraf.

25. Pandey, Rita. *Changes in serum protein contents, amino acids and cholesterol of brain liver and kidney under the influences of pesticides in fish.* HS Gour. Dr. D.K. Saraf.

26. Patel, Narayan Singh. *Limnology of Tikamgarh lake.* HS Gour. Dr. V.S. Jain.

27. Prabhu, Sanjay. *Studies on the colour change mechanism and the pineal organ of a fresh water teleost fish and their probable implications in the biological rhythm.* HS Gour. Dr. A.K. Raizada.

28. Rai, Sachchidanand. *An ecological study of important phytophaguous mites.* BHU. Prof. G.P. Agrawal.

29. Ravi Shanker, G. *Avian reproductive physiology.* BHU. Dr. P.D. Tewari.

30. Sen, Uma Shankar. *Physico-chemical and biological studies of Dhasan river with special reference to industrial pollution.* HS Gour. Dr. V.S. Bais.

31. Shrivastava, Kirti. *Specific differences in the muscular system of Nandus nandus and nandus marmoratus.* HS Gour. Dr. D.K. Saraf.

32. Singh, Subash Chand. *Certain aspects of studies on reproduction in hemiptera.* BHU. Dr. Dinesh Kumar.

33. Swain, Bindhya Basini. *Biochemistry of aging.* BHU. Dr. S.N. Singh.

34. Tiwari, Smriti. *Studies on the lipid peroxidation and aging in insects.* HS Gour. Dr. U.S. Gupta.

Medical Sciences

1. Babanari, Mohammad Nasser Rezaei. *Phytochemical and pharmacological investigation of medicinal plants.* BHU. Dr. V.K. Agarwal.

2. Joshi Manohar, Saroja. *Comparative pharmacognostical and phytochemical studies on some Indian medicinal plants: Delhi flora.* Delhi. Dr. R. Zafar.

3. Ravy, K.G. *Newer approaches to drug formulations.* Kerala. Dr. S.B. Rao.

4. Trivedi, Krishna. *An epidemiological and entomological study of mosquito bome diseases in Chiraigaon Block, Varanasi.* BHU. Prof. S.D. Gaur.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Anand Kumar. *The differential geometry of Finsler spaces and investigations in it.* Avadh.

2. Bhanja, Mrutyunjay. *Properties of random equations.* Utkal.

3. Bhattacharya, Abhijit. *Redundancy optimisation problems in systems with state-dependent failure rates.* IIT Kharagpur.

4. Biswal, Bhagaban. *Theoretical studies of some problems on viscoelastic lubrication.* Utkal.

5. Chendel, Rameshwar S. *A study of multivariable H. function and its applications.* Sukhadia.

6. Dube, D.D. *Kuchh astrophisical phenomena per magneto hydrodynamic tarangon ka anuprayog.* Avadh.

7. Gupta, Ravindra. *Some investigations in generalised distributional integral transformations.* Sukhadia.

8. Ravichandran, S. *Simultaneous best polynomial approximation.* Hyderabad.

9. Roy, Sudhansu. *Mathematical analysis of some problems of applied mechanics having physiological importance.* IIT Kharagpur.

Statistics

1. Yesh Pal. *A theoretical study of some factor analysis problems and factorial and canonical analyses of Id dimensionality between pairs of psychological domains of creativity, intelligence and personality.* Panjab.

Astronomy

1. Khanna, Manju. *Capture hypothesis and statistics of cometary orbits.* Punjabi.

2. Shelke, R.N. *Some studies of prominences coronal holes and flare related phenomena.* Kumaun.

Physics

1. Bansal, T.C. *Investigation of the lower ionosphere using multifrequency absorption measurements of the radio wave at low latitudes.* Sukhadia.

2. Bhoopathy, T.J. *Theoretical and experimental spectroscopic studies of some polyatomic molecules.* Anna.

3. Chennupati, Jagdish. *Growth and characterization of Pb0.8 Sn0.2 Te thin films.* Delhi.

4. Datta, Amal Kumar. *Structural characterization of some asbestos and plant fibres by X-ray diffraction and some aspects of X-ray diffraction by partially disordered cylindrical structures.* IIT Kharagpur.

5. Dixit, Sanjay. *Non-linear wave-wave interactions in solid state.* Vikram.

6. Gurmel Singh. *Gamma ray transmission and iron diffusion studies in different soils.* Punjabi.

7. Mohanty, Sanghamitra. *Analysis of hyperon-nucleon scattering.* Utkal.

8. Omayorupakam Pillai, S. *Study of internal pressure and free volume in some salt solutions from ultrasonic velocity measurements.* Anna.

9. Sanghvi, R.K. *A study of linear and non linear instabilities in plasma.* Vikram.

10. Sardesai, Dileep Vidhyadhar. *Effect of methodology used by the study of ionospheric drift parameters.* Sukhadia.

11. Saxena, Mahendra Kumar. *Parametric wave interactions in plasmas: Some theoretical studies.* Rajasthan.

12. Sikka, Pawan Kumar. *Study of electron transport in amorphous semiconductors cross-linked chalcogenide alloys: Ge-Sb-Se system.* Meerut.

13. Som Prakash. *Dynamical properties of transition metal carbides.* Meerut.

14. Talele, Lakhichand Tulashiram. *Growth, characterization of molybdenum sulphoselenides single crystals and their uses in photoelectrochemical solar cells.* Patel.

15. Thakur, Hardeep Singh. *Some vibration problems in solid mechanics.* HP.

16. Venu Gopalan, K. *Investigations of EFG in metals by hyperfine interactions.* Sukhadia.

Chemistry

1. Agarwal, Vimal Prasad. *Chemical investigation and antimicrobial studies of some Indian medicinal plants.* Rajasthan.

2. Ambade, Nirmala Shripati. *Synthetic studies in natural products and application of dichlorodicyanobenzoquinone.* Shivaji.

3. Ashok, D. *Chemical investgiatin of plant insecticides and synthesis of related compounds.* Osmania.

4. Ashok Kumar. *Studies on carbon materials.* Meerut.

5. Band, P.M. *Synthesis of heterocyclic compounds.* Nagpur.

6. Basnet, Resh Bahadur. *Study of the complexation equilibria of some chalcones and related compounds with metal ions.* Delhi.

7. Bhatt, B. Shridhar. *Some studies with synthetic organic ion exchangers.* Sukhadia.

8. Bose, Jyotirmoy. *Studies on the catalytic control of major atmospheric pollutants.* ISM.

9. Chauhan, Ghanshyam Singh. *A study of graft copolymerization on topolypropylene initiated by gamma rays.* HP.

10. Debholkar, Kavita. *A study of selected polymer supported reactions in organic synthesis and utilization of polyester waste.* Delhi.

11. Desai, Uday Vinayakrao. *Synthetic studies in juvenile hormone analogs, terpenoids and deuterium labelling.* Shivaji.

12. Ganga Prashad. *Study of some organosilicon derivatives of CNSL.* Meerut.

13. Ghosh, Haranath. *Studies related to the failure of steels in fertilizer industry.* ISM.

14. Gupta, Chanchal. *Electronic and vibrational spectral studies of some polyatomic molecules.* Meerut.

15. Gupta, Harish Kumar. *Potential antineoplastic agents : Syntheses and characterization of substituted arylazo pyrazoles and their derivatives.* Meerut.

16. Gupta, Kamal Kishore. *Alicyclic alkoxides of some elements.* Rajasthan.

17. Gupta, Usha. *Studies of metal complexes with some thioglycolates.* Punjabi.

18. Jain, Shashi. *Physico-chemical studies of some metal ions with lamineoxy acids.* Sukhadia.

19. Janakiraman, R. *Kinetics of electrode processes of solid electrodes.* BHU.

20. Kaushik, Sanjay Dutt. *IPSO-attack in aromatic nitration.* Meerut.

21. Khamparia, Ravi Shanker. *Effects of zinc, manganese and phosphorus salts on growth and yield of rice and wheat in medium black soils.* Durgawati.

22. Khandia, Badri Lal. *Kinetics and mechanism of oxidation of some amino acids by Ce (IV).* Rajasthan.

23. Lall, Anjali. *Kinetics and mechanism of some new redox reactions.* Durgawati.

24. Lohani, Hema. *Study of terpenoid composition of some high altitude flora.* Kumaun.

25. Man Singh. *Volumetric and transport properties of some amino acids in urea water solutions.* Delhi.

26. Mandal, Kapileshwar. *Physico-chemical studies in the coordination properties of alkali metals.* Magadh.

27. Mathur, Govind Swaroop. *Study on characterization and effect of some reclamative measures on salt affected soils of Indira Gandhi Nehar area.* Rajasthan.

28. Meena, N. *Volumetric and transport studies of some amino acids in aqueous electrolyte solutions.* Delhi.

29. Mishra, Krushna Gopal. *Environmental corrosion studies of welded steel specimens in industrial and marine atmospheric conditions.* Utkal.

30. Pathak, R.P. *Fluorescent medicinal compounds from high altitude flora of Kumaun glaciers.* Kumaun.

31. Pitliya, Roshan Lal. *Kinetic study of some physico-chemical oscillations.* Sukhadia.

32. Purohit, Rajesh. *Studies in kinetics and mechanism of oxidative decarboxylation of some dicarboxylic acids by potassium permanganate in moderately acidic medium.* Vikram.

33. Raghavendra Rao, S. *Kinetics and mechanism of organic reactions.* Utkal.

34. Rane, Rajshri Keshavrao. *Synthetic studies in natural products.* Shivaji.

35. Ravi Kumar. K. *Preparation, characterization and evaluation of novel anchored montmorillonite catalysts.* Osmania.

36. Ray, Nityananda. *Mechanism of substitution reaction of some coordination complexes of cobalt (III).* Utkal.

37. Sabira Banu. *Dibenzomylmethane and its analogues in analysis.* Sukhadia.

38. Sah, M.M. *Synthesis and fungi toxicity of some novel organic compounds.* Kumaun.

39. Sandhu, Balwinder Singh. *Analytical feasibility of electroanalytical techniques for trace metal characterization in some aquatic effluents.* Rajasthan.

40. Saxena, Mridula. *Studies on antimalarials and antihistaminics.* Meerut.

41. Saxena, Narendra Kumar. *Development of some fire retardants for combustible materials.* Meerut.

42. Sharma, Mukat Behari Lal. *A study of coordination chemistry of inner transition metal ions with some organic ligands.* Meerut.

43. Sharma, Nagesh. *Catalytic hydrosulphurisation of petroleum hydrocarbons.* IIT Kharagpur.

44. Sharma, Sangeeta. *Spectral studies of some N-heterocyclic molecules.* Meerut.

45. Shrimali, P.S. *Studies in the extraction of manganese from some typical ores.* Vikram.

46. Taleshra, G.L. *Studies on amino-oxy and related compounds.* Sukhadia.

47. Tyagi, Sunita. *Some new complexes of molybdenum (VI).* Delhi.

48. Varshney, Anil Kumar. *Studies in divalent and tetravalent tin and lead azomethine derivatives.* Rajasthan.

49. Yadav, Krishnaji Ramchandra. *Kinetics and mechanism of oxidation of amides by potassium permanganate.* Shivaji.

Earth Sciences

1. Bastia, Rabinarayan. *Structure and petrography of the precambrian gneissic rocks around Siddipet, Medak District, Andhra Pradesh.* IIT Kharagpur.

2. Das, Subhashish. *Sedimentology of a tropical tidal flat around Chandipur, Orissa, India.* IIT Kharagpur.

3. Kouhsari, Amir Hossein. *Geological studies on bauxite, deposits of Shrivadhan Area, Kolaba District, Maharashtra State, India.* Karnatak.

4. Mishra, Biswajit. *Ore petrology and geochemistry of three proterozoic carbonate hosted sulfide deposits from India.* IIT Kharagpur.

5. Reddy, C.R. *Geological studies on lead mineralisation at Bandalamotty, Agnigundala mineralised belt, Andhra Pradesh, India.* ISM.

6. Shringarpure, Dhananjay Mukundrao. *Ichonological studies of the rocks exposed between Chitrod and Manfare, Eastern Kutch, Gujarat State.* Baroda.

7. Veeranarayana Rao, Battula. *Petrology and geochemistry of magnetitequartzites and associated rocks of Ongole area, Prakasam District, Andhra Pradesh.* Andhra.

Engineering and Technology

1. Adiseshu, N. *On non-resonant slot array antenna.* IIT Kharagpur.

2. Anandamohana Rao, Dasary. *Dynamics of rotor bearing systems as influenced by dilute viscoelastic lubricants.* IIT Kharagpur.

3. Das, Gautam. *Some studies on the kinetics of vapor phase catalytic condensation of aniline to diphenylamine.* IIT Kharagpur.

4. Das Gupta, B. *Machining system optimization for multiple spindle automatic lathe.* IIT Kharagpur.

5. Das, Sarit Kumar. *Stability analysis of periodic systems via infinite determinant methods.* IIT Kharagpur.

6. Duraiswamy, K. *Static state estimation for power systems.* Anna.

7. Dutta, Debashish. *Bit synchronisation in fibre optic receivers.* IIT Kharagpur.

8. Ghosh, Amalananda. *Significance of crack: Tip plastic deformation and crack growth resistance curve on thin sheet fracture.* IIT Kharagpur.

9. Malhotra, J.P. *Turbulent drag reduction studies and wind tunnel design.* IIT Kharagpur.

10. Mandal, Braja K. *Activated displacement polymerization.* IIT Kharagpur.

11. Natarajan, K.S. *A study of the characteristics of siro spun yarns produced on the short staple systems.* Anna.

12. Pal, Tapan Kumar. *Welding characteristics of nickel steels.* IIT Kharagpur.

13. Pathak, Ashok Kumar. *Application of type curves for pressure transient analysis of vertically fractured wells.* ISM.

14. Ranjit Singh. *Techniques of energy management for Rajasthan.* Rajasthan.

15. Ray, Ajay Kumar. *A multistage data acquisition and pattern classification system for character recognition.* IIT Kharagpur.

16. Saha, Chandidas. *Studies on some structural devices for aeration of aquacultural ponds.* IIT Kharagpur.

17. Sengupta, Dilip Kumar. *Some studies on dependence of PZC on defect structure of metal oxides and dye adsorption characteristics in metal oxides and metal sulphide systems.* IIT Kharagpur.

18. Sharma, Hoshyar Chand. *Experimental designs through PD-Cycle and autmorphisms and fittings of some quadratic models.* HP.

19. Sharma, Sushil Kumar. *Policy design in system dynamics models : Some control theory applications.* IIT Kharagpur.

20. Singh, Virendra Pratap. *On the dynamic response of buried orthotropic cylindrical shells.* BHU.

21. Surendra Mohan. *Studies on spontaneous combustion of some coals from Jharia Coal Fields.* IIT Kharagpur.

INDIAN INSTITUTE OF SCIENCE
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REQUIRES

ASSISTANT PROFESSOR in the Department of Physics. Ph.D. in Physics with 5 to 8 years experience in Experimental and Theoretical Condensed Matter Physics. The Institute is seeking outstanding candidates with specialisation in the preferred areas of lasers, semiconductors, Physics at low temperatures and high pressures, amorphous materials, quasi Crystalline systems and biological systems.

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IA/308-3/87. **REGISTRAR**

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ADMISSION NOTICE 1

Session : 1987-88

Applications are invited for the following courses/fellowships for which duration, values of monthly stipend fellowship and eligibility conditions are briefly described below. Further details and other conditions are available in the prospectus. Selection of candidates is based on academic record, written tests and interviews.

1.1 **Bachelor of Statistics (Hons) :** *Duration :* 3 years; *Stipend :* Rs. 100 ; *Eligibility :* Successful completion of 10+2 years of secondary education (or equivalent thereof) with Mathematics and English.

1.2 **Master of Statistics :** *Duration :* 2 years; *Stipend :* Rs. 125; *Eligibility :* 3-year Bachelor's degree with Statistics and Mathematics as full subjects or equivalent qualification, obtained after twelve years of secondary education. Those without Statistics, but having outstanding mathematical ability, may also be considered. Holders of Statistician's Diploma/Senior Diploma of ISI are eligible for admission to the second year of the course.

The National Board of Higher Mathematics offers one scholarship of value of Rs. 400 per month, for an outstanding First year student of the Master of Statistics course of the Institute, for two years.

1.3 **Master of Technology in Computer Science :** *Duration :* 2 years; *Stipend :* Rs. 1000; *Eligibility :* Master's degree in a relevant subject or Bachelor's degree in Engineering/Technology or equivalent qualification and knowledge of relevant topics of Physics and Mathematics.

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2.2 **Fellowships in other research areas**

Group A : Several areas of Computer Science which include Analysis of Algorithms, Artificial Intelligence, Computer Communication Network, Digital Communication, Fault Tolerance, Image Analysis, Parallel Algorithms, Pattern Recognition, Testable Design, VLSI Architecture. *Eligibility :* (i) M.Sc. or equivalent degree in Physics/Mathematics/Statistics; or (ii) B.E. or equivalent degree or M.E. or equivalent degree in Electronics/Computer Science/Electrical Engineering.

Group B : Dynamical Meteorology, Hydrodynamic Stability, Statistical Theory of Turbulence, Viscous Flow, Sediment Transport and Theory of Dispersion. *Eligibility:* (i) M.Sc. or equivalent degree in Physics/Mathematics/Statistics; or (ii) B.E. or equivalent degree in Mechanical Engineering.

Group C : Foundations of Quantum Mechanics, Nuclear and Particle Physics, Super-symmetry, Cosmic Ray Physics and Astrophysical Plasma. *Eligibility :* (i) M.Sc. or equivalent degree in Physics/Mathematics/Statistics preferably with Physics or Mathematics at the graduate level.

Group D : Serological and Biochemical Genetics : *Eligibility :* First or high second class Master's degree in Anthropology with specialisation in Physical Anthropology and capability of doing field work.

Group E : Several areas of Agricultural Sciences which include Crop Production Technology, Plant and Soil Analysis, Designing of Experiments and allied areas. *Eligibility:* First or high second class M.Sc. (Agriculture) in Agronomy / Horticulture and capability of undertaking extensive field work.

Group F : Plant Anatomy and Morphology. *Eligibility:* First or high second class Master's degree in Botany or Agricultural Botany with knowledge of plant anatomy and capability of doing field work.

3. **Certificate/Diploma Courses on Operation and Programming of Automatic Data Processing Equipment :** *Duration :* 1 year for certificate and additional 1 year for Diploma if one attains a specified standard in the Certificate Course. *Tuition Fee :* Rs. 200 per year, no stipend. *Eligibility :* (i) completed 21 years but is below 25 years of age on 1-4-87; (ii) Bachelor's degree or equivalent with Mathematics as a subject at higher secondary (10+2) level and (iii) acquired typing speed of 30 words per minute.

A proposal is under consideration to (i) drop the minimum age limit, (ii) reduce typing speed requirement to 25 words per minute; and (iii) admit in 1987 and 1988 those who successfully completed the One Year Course on Operation of Automatic Data Processing Equipment of ISI during 1982-86 and obtained at least 60% in the aggregate, directly to the second year. Those thus admitted will have to undergo special courses during May-July and attain a specified standard.

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UDAIPUR

Advertisement No. 1/87

Dated : 29-1-1987

Applications are invited on prescribed application form for the following posts in Teaching/Research/Extension on regular basis in the University. **The application form and FULL DETAILS ABOUT QUALIFICATIONS AS PRESCRIBED BY THE UNIVERSITY, etc. can be obtained from Shri A.L. Sahlot, Assistant Registrar (Recruitment), University Administrative Office, Sukhadia University, Udaipur, Pin - 313 0016. On PAYMENT OF Rs. 5/-** through Crossed Indian Postal Order payable to the "Comptroller, Sukhadia University, Udaipur" alongwith a self addressed envelope of 27 cms. x 12 cms. size bearing Postal Stamps of Rs. 2.20 only **and send the application form duly completed in all respect on the same address up to 28-2-1987.**

Those candidates who have already applied for these posts mark (*) in response to our previous Advertisement Nos. 1/85, 6/86 and 10/86 **need not to apply again,** but they are requested to please send their fresh Bio-data (one side typed) on plain paper to update the same.

Category 'A' (U.G.C. Pay Scale)

1. Associate Professor

Pay Scale : Rs. 1200-50-1300-60-1900.

1. Commerce (Accounts & Statistics) —1
2. Animal Breeding and Genetics —1
3. Research Engineering/Senior Scientific Officer in Renewable Energy, with specialization in Farm Machinary and Power Engg./Processing Engg./Mechanical Engineering. —1

2. Assistant Professor

Pay Scale : Rs. 700-40-1100-50-1600.

1. Hindi —1
2. Drawing and Painting —1
3. History —1
4. Plant Pathology —2
5. Livestock Production & Management —2

*6. Obstetrics & Gynaecology —1

Category 'B' (State Government Pay Scale)

3. **Assistant Engineer (Senior Analyst-Cum-Field Supervisor)** —3
Pay Scale : Rs. 1000-30-1300-40-1500-50-1800-60-1860.

*4. **Assistant Engineer (Civil)** —1
Pay Scale: Rs. 1000-30-1300-40-1500-50-1800-60-1860.

5. **Instructor (Veterinary Science)** —1
Pay Scale : Rs. 860-20-900-25-1000-30-1300-40-1500-50-1750.

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1. Number of posts may be **INCREASED OR DECREASED.**
2. Application forms received after the expiry of the last date may also be considered at the discretion of the Vice-Chancellor.
3. 16% posts would be reserved for Scheduled Caste and 12% for Scheduled Tribes, subject to general suitability.
4. A higher start in the grade may be considered for exceptionally qualified candidate.
5. **The University reserved the right not to fill up any post(s) advertised.**

G.S. Sharma
REGISTRAR

DAYALBAGH EDUCATIONAL INSTITUTE
(Deemed University)

Dayalbagh, Agra - 282 005.

The last date for receipt of completed application forms for various posts advertised in these columns on 12 January, 1987 has been extended upto **12 March, 1987.**

REGISTRAR

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Advertisement No. 22/86-87 Dated: 27-1-1987

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II-Desirable: Ability to handle computerised equipment for biochemical analysis. Training in BASIC computer language know-how in Radio-immunoassay technique from a Radio-immunoassay Laboratory. A Postgraduate degree or Diploma in Pathology.

2. Assistant Administrative Officer (One post) (Permanent) J.N. Medical College Hospital.

Scale of Pay: Rs. 2000-60-2300-EB-75-3200-100-3500 plus allowances.

Qualifications

I-Essential: (i) Graduate in Arts, Science, Commerce, and Social Sciences.

(ii) Atleast one year's experience of working in a Hospital in Administrative capacity.

II-Desirable: Diploma / Certificate in Hospital Administration.

3. Security Officer (One post) (Permanent) Proctor's Office.

Scale of Pay: Rs. 2000-60-2300-EB-75-3200-100-3500 plus allowances.

Qualifications

I-Essential: (i) Bachelor's degree.

(ii) About 10 years experience in a position involving security and administrative duties.

(iii) A good physique & personality.

II-Desirable: Law degree or practical knowledge of Criminal Law & Procedure, experience of security work in Army or Police.

Age: Below 45 years. (Age limit may be relaxed in special/exceptional cases, if found suitable otherwise).

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Note-II: Those candidates who have applied in response to Advertisement No. 3/86-87 dated 14-5-1986 need not apply again. They will be considered on the basis of their previous applications if eligible.

4. Clinical Pathologist (Two posts) (Permanent) J.N. Medical College Hospital.

Scale of Pay: Rs. 1640-60-2600-EB-75-2900 plus allowances.

Qualifications

I-Essential: M.B.B.S. with experience of working in a Clinical Pathology Laboratory of a recognised Institution for atleast one year as a Resident Pathologist.

II-Desirable: Ability to handle computerised equipment for biochemical analysis. Training in BASIC computer language. Know-how in Radio-immunoassay technique from a Radio-immunoassay Laboratory. A Postgraduate degree or Diploma in Pathology.

5. Senior Technical Assistant (Theatre) (One post) (Permanent) Department of Ophthalmology.

Scale of Pay: Rs. 1640-60-2600-EB-75-2900 plus allowances.

Qualifications

I-Essential: B.Sc. or equivalent with Diploma/Certificate of Nursing. Adequate experience of working as Theatre Technician in an Eye Hospital of repute or Medical College.

OR

Intermediate (Science) or equivalent with Diploma/Certificate of Nursing. Two years experience of working as Theatre Assistant Technician or practical experience of four years in reputed Eye Hospital/Medical College.

II-Desirable: Experience of working in O.T. specially in Rural Eye Relief Camps.

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Scale of Pay: 1640-60-2600-EB-75-2900 plus allowances.

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Note: Those candidates who have applied in response to Advertisement No. 17/86-87 dated 19-11-1986 need not apply again. They will be considered on the basis of their previous applications if eligible.

7. Dawasaz Gr. I (One post) (Permanent) A.K. Tibbiya College Hospital.

Scale of Pay: Rs. 1400-40-1800-EB-50-2300 plus allowances.

Qualifications

I-Essential

Educational: High School or equivalent oriental qualifications recognised by the University.

Technical: Diploma in Unani Medicine Sahayak Hakim recognised by the State/Board/University.

II-Desirable: Three years experience in Dawasazi (Pharmacy) will be preferred.

Note: Candidates having good experience in Dawasazi (Pharmacy) may be relaxed in suitable cases in respect of their technical qualifications.

8. Senior Technical Assistant (One post) (Temporary) Department of Pathology.

Scale of Pay: Rs. 1640-60-2600-EB-75-2900 plus allowances.

Qualifications

I-Essential: (i) B.Sc. (Biology)

(ii) Diploma in Medical Lab. Technology (Pathology).

(iii) Experience of working in Pathology Department of a teaching hospital.

II-Desirable.: Experience of working in Cytopathology / Histopathology / Haematology Laboratory of a Pathology Department.

Note: The eligible candidates will have to undergo a practical test before interview.

9. Senior Technical Assistant (Two posts) (Permanent) J.N. Medical College Hospital.

Scale of Pay: 1640-60-2600-EB-75-2900 plus allowances.

Qualifications

1. B.Sc. 2. Diploma in Medical Lab. Technology with practical experience in Clinical Pathology in a recognised Hospital for some years.

Note: The eligible candidates will have to undergo a practical test before interview.

10. Fieldman (One post) (Permanent) Centre of Wildlife & Ornithology.

Scale of Pay: Rs. 1400-40-1800-EB-50-2300 plus allowances.

Qualifications

I-Essential: B.Sc. degree with Zoology and Botany as special subjects.

II-Desirable: Experience of working in natural forested areas.

Note: Those candidates who have applied in response to Advertisement No. 15/86-87 dated 29-10-1987 need not apply again.

11. Junior Instrument Mechanic (Moulding) (One post) (Permanent) (Workshop) Mechanical Engineering Department.

Scale of Pay: Rs. 1400-40-1800-EB-50 2300 plus allowances

Qualifications: Trade Certificate with atleast five years experience in appropriate field.

OR

Literate with ten years experience in Moulding.

Note: The eligible candidates will have to undergo a practical test before interview.

12. Technical Assistant (Stores) (One post) (Permanent) Department of Pharmacology.

Scale of Pay: Rs. 1400-40-1800-EB-50-2300 plus allowances.

Qualifications

(i) B.Sc. (ii) Experience of handling stores, medical equipments etc. preferably in a Medical College.

13. Junior Engineer (One post) (Permanent) (Sewerage and Sewage Disposal Scheme) Building Department.

Scale of Pay: Rs. 1400-40-1800-EB-50-2300 plus allowances.

Qualifications: (i) Diploma in Civil/Mechanical Engg. with five years practical experience in sewerage and sewage/Water supply.

(ii) Experience in the maintenance work of motors and pumps and their installations.

14. Health Visitor (One post) (Permanent) Department of Preventive and Social Medicine.

Scale of Pay: Rs. 1200-30-1560-EB-40-2040 plus allowances

Qualifications

I-Essential: (i) Matric with Science subjects.

(ii) Possession of Health Visitor's training certificate from a recognised University.

II-Desirable: Experience in Field work.

15. Junior Instrument Mechanic (Refrigeration) (One post) (Permanent) Department of Mechanical Engineering.

Scale of pay: Rs. 1400-40-1800-EB-50-2300 plus allowances.

Qualifications: Ordinarily Post-matric Diploma in appropriate branch of Mechanical Engineering with two years appropriate experience.

OR

Trade certificate in appropriate trade plus seven years appropriate experience.

Note: The eligible candidates will have to undergo a practical test before interview.

16. Pharmacists (6 Posts) (Permanent) J.N. Medical College Hospital.

Scale of Pay: Rs. 1200-30-1560-EB-40-2040 plus allowances.

Qualifications: Matriculate or equivalent. Diploma/Certificate in Pharmacy. Registration Certificate from one of the State. Practical experience as a Pharmacist for three years.

Note: Those candidates who have applied in response to Advertisement No. 17/86-87 need not apply again. They will be considered on the basis of their previous applications.

17. Pharmacist (Unani) (One post) (Permanent) A.K. Tibbiya College.

Scale of Pay: Rs. 1200-30-1560-EB-40-2040 plus allowances.

Qualifications

I-Essential

Educational: High School or its equivalent oriental qualifications, recognised by the University.

Technical: Diploma in Unani Medicine or Sahayak Hakim recognised by the State Board/University.

II-Desirable: Three years experience in Dawasazi (Pharmacy) will be preferred.

Note: The candidates having good experience in Dawasazi (Pharmacy) may be relaxed in suitable cases in respect of Technical qualifications.

18. Junior Laboratory Assistant (Architecture) (One post) (Permanent) University Polytechnic.

Scale of Pay: Rs. 975-25-1150-EB-30-1540 plus allowances.

Qualifications

I-Essential: Certificate in Draftsmanship.

II-Desirable: Experience in the relevant field.

Note: The eligible candidates will have to undergo a practical test before interview.

19. Electrician-cum-Pump Operator (One post) (Permanent) Registrar's Office.

Scale of Pay: Rs. 950-20-1150-EB-25-1500 plus allowances.

Qualifications: (i) High School/Jr. High School and I.T.I. Certificate in the trade of Fitter or Mechanic or Electrician.

(ii) Atleast five years practical experience in the operation and maintenance of electrically driven pumping plants and other installations in connection with tube-well and Sump-well.

He should be able to rectify the minor electrical and mechanical defects or faults.

Note: The eligible candidates will have to undergo a practical test before interview

20. Engine Driver (One post) (Permanent) University Polytechnic.

Scale of Pay: Rs. 950-20-1150-EB-25-1500 plus allowances.

Qualifications: (i) I.T.I. passed in the relevant field with some experience.

OR

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Note: The eligible candidates will have to undergo a practical test before interview.

21. Mechanic (Electrical) (One post) (Permanent) Principal's Office, J.N. Medical College.

Scale of Pay: Rs. 950-20-1150-EB-25-1500 plus allowances.

Qualifications: (i) I.T.I. Certificate in Electrician's Trade.

(ii) Three years experience of maintenance and repair of electric motors and other electrical appliances.

Note: The eligible candidates will have to undergo a practical test before interview.

22. Nuskhaband (One post) (Permanent) A.K. Tibbiya College Hospital

Scale of Pay: Rs. 950-20-1150-EB-25-1500 plus allowances.

Qualifications

I-Essential

Educational: High School or its equivalent oriental qualification recognised by the University.

Technical: Diploma in Unani Medicine or Sahayak Hakim, recognised by the State Board/University.

II-Desirable: Three years experience in Nuskhabandi will be preferred.

Note: Those candidates who have applied in response to Advertisement No. 13/86-87 dated 18-9-1986 need not apply again. They will be considered on the basis of their previous applications.

23. Junior Research Fellow (One post) (Temporary) Department of Physcis (Under D.S.A. Programme).

Scale of Pay: Rs. 1000/- (Fixed) (For NET qualified candidates)

800/- (Fixed) (For NET not qualified candidates).

Qualifications

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(ii) Research experience in experimental Low Energy Nuclear Physics.

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Last date for receipt of applications is 7th March, 1987 (during office hours). Incomplete applications and those received late will not be considered.

Javed Usmani
REGISTRAR

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16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429.
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E 2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

F.D.52

University News

MONDAY, FEBRUARY 23, 1987 Rs. 1.50

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From L to R : Lt. Gen. S.P.P. Thorat (Retd), Justice P.N. Bhagwati, Former Chief Justice of India and Dr. K.B. Powar, Vice-Chancellor at the 23rd annual convocation of the Shivaji University, Kolhapur.

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Application forms can be obtained by post on pre-payment of Rs. 25/- only by crossed Postal Order, payable to the Registrar, Birla Institute of Technology, Mesra, Ranchi. The request should accompany a self-addressed envelope of size 26 x 12 cm. affixed with postage stamps of Rs. 1.80 P. clearly mentioning the form required i.e. MBA or MCA, as the case may be.

The last date for receipt of completed application form is **31st March, 1987.**

J.B. Saksena
REGISTRAR & OSD

2 MAR 1986
C. F. T. R. I., MY

UNIVERSITY NEWS

VOL. XXV **FEBRUARY 23**
No. 8 **1987**
Price **Rs. 1.50**

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor:
SUTINDER SINGH

A Future Brighter than the Past

The report of the IIT Review Committee, headed by Late Dr. Y. Nayudamma, was submitted to the President of India, by its Vice-Chairman, Shri Hiten Bhaya, on 11th February, 1987. The President, in his capacity as the Visitor of the Indian Institutes of Technology (IITs), had appointed the Review Committee in 1983 under sub-section 9 of the Indian Institutes of Technology Act, to review the working of the Indian Institutes of Technology at Kharagpur, Bombay, Madras, Kanpur and Delhi. The Committee was specifically charged

(a) to review the progress of IITs in fulfilment of their broad objectives as centres of advanced study and research in science, engineering and technology;

(b) to examine how far the IITs had interacted with other technical institutions with regard to the courses of study, programmes of research, and faculty development;

(c) to assess the overall impact of the IITs on training of high grade engineers for the technological development of the country; and

(d) to recommend the lines along which the IITs should be further developed for advanced studies and research in the light of developments that have taken place or projected at other institutes of technology and the Indian Institute of Science.

The Committee affirms that the IITs had amply fulfilled the specific goals set for them by acting as vibrant national institutes of advanced technological learning of international standards and producing over 27,000 high grade engineers during the last 25 years. It rightly observes that the IITs have acquired a degree of excellence in their facilities and faculty with the help of industrialised countries and as liberal a funding as was possible by the Central Government. They have evolved an exclusive system of attracting good calibre students. They have also developed sound systems pertaining to courses of study and evaluation and oriented towards helping students to learn at their pace, choosing a load and picking electives with flexibility in the choice of subjects. These measures had enabled the IITs to produce B. Tech. engineers of excellent quality comparable to the best in the world.

This is, however, only one side of the picture. On the other the Committee could not help noticing mismatches developed during the period. The demand from the industry for the products of the IITs was lower than that for the products of the conventional institutes. This had resulted in large scale brain drain of the IIT graduates as also in the relative unattractiveness of their post-graduate programmes. The Committee attributes this situation to unpreparedness of industry, policy support for technology imports, and foreign collaboration and non-involvement with development oriented projects. It is felt that this distortion will get corrected as the Indian industry enhances its design and development capabilities in its attempt to become internationally competitive. This will obviously call for strong links between the industry and the IITs on the one hand and the IITs and the scientific institutions on the other. The Committee has, therefore, recommended the establishment of an Industrial Foundation at each of the IITs independent in its day to day functions, with its own budget, and plan for marketing its research and consultancy capability; as also enhanced involvement of IITs in setting up Innovative Centres, Science and Technology Parks and industry owned research centres near the campuses. It also feels that faculty members may be encouraged to become entrepreneurs taking 3-year leave following the CSIR pattern.

The Committee has also recommended the restructuring of the undergraduate programmes by offering flexibility and actual availability of right choice of electives, new technology and system involving cross disciplinary perspectives, experimental and innovative programmes to foster creativity and maintaining a science-based engineering curriculum. Restructuring of the post-graduate programmes is also desired to prepare teachers for engineering education as also provide trained manpower to industry with a capability to influence upgradation and absorption of technology and setting up of new high technology industries. Innovative ideas like starting an integrated 5-year course leading to M.Tech degree; and modular courses to give students greater flexibility in transfer between institutes and to change disciplines have been stressed.

The second mismatch observed by the Committee refers to the general expectation that all national institutions will contribute specifically to rural economy and the prevalent attitude in the IITs that technology was relevant only to large scale manufacturing industry. It rightly observes that given the right orientation high technology not only can but must contribute to improving living conditions, to making traditional vocations more efficient and to imparting knowledge, in the countryside. As a corrective, the Committee has suggested that the IITs should take up research and development activities related to the environment in which they are located. It feels public service in some meaningful form should be organised for participation, both by the teachers and the taught. It has, therefore, recommended the organisation of evening classes in some specialised subjects for employed persons as also continuing education through seminars and other programmes. The Committee feels that if successful in these attempts, the IITs' impact will be more visible and their role appreciated by the community.

Another aspect of the working of IITs that attracted the Committee's attention was the natural phenomenon of ageing i.e. obsolescence of equipment and facilities. To counter obsolete administrative practices and the threat of falling behind in knowledge and losing the organisational vitality, the Committee has recommended a number of administrative measures. The Committee has recommended that the plan funds to the IITs should be atleast Rs. 100 crores as against Rs. 50 crores suggested by the steering group on education for the 7th plan. It feels the IITs must be able to earn and attract substantial funds to support a major part of their research activities through sponsored projects and consultancies. It has also suggested that the non-plan expenditures should be contained and the IITs should adopt zero based budgetary principles. Avenues for augmenting the income of the IITs be explored and approximately a 3rd of the operating costs should be met by the IITs' own generations. The Committee has also recommended a reasonable relationship between fees and the costs of imparting education in the IITs. Those unable to meet enhanced fees should be helped through bursaries created out of endownments from the Government and other sources. These measures, the Committee felt, will help meet the threat of obsolescence of facilities and equipment.

To streamline the administrative set up of the IITs, the Committee has recommended two advisory committees to assist the Council in academic and administrative matters respectively. The Committee has found the statutory position of the Registrars as incompatible with the management structure needed today and has recommended the appointment of a Chief Administrative Officer as incharge of campus administration and personnel functions. He will be assisted by a trained Personnel Manager. The campus and township management will be in the charge of an Estate Manager; Finance and all matters connected with funds will be looked after by a Finance Manager; both professionally qualified. The reorganised structure is expected to facilitate the transformation of the style of management and move to a clustered type of management structure from the present hierarchical and vertical one. It is claimed that the new system will help derive optimal advantage of the degree of autonomy statutorily conferred on the IITs, decentralise decision making powers while ensuring conformity with corporate policy and goals, ensure subservience of the administrative support system to academic activities, and develop a greater sense of participation in management by students, faculty, researchers and other employees.

These recommendations are intended to enable the IITs fulfil their potential role in the more dynamic and innovative stage of economic development India is destined to enter by the turn of the century. Their proper implementation, we believe, will help IITs put their best foot forward to shape a future brighter than their past.

☐

ADULT EDUCATION

G.B.K. Hooja*

In cold print, the Programme of Action for Adult Education under the National Education Policy, 1986 reads like any other long-winded, hopefully pious, umbrella document, which, prima facie, seems to have left no possible line of action out of its battery of attack. But somehow it fails to communicate a sense of urgency and lacks vigour. While it seeks to delineate the administrative and logistic details of the various programmes to be undertaken, it has not underscored the main areas of thrust. The strategy is to set up a chain of command and supervision from the national to the state/district level. At the same time it is proposed that the operational unit of adult education would continue to be the Adult Education Centre (AEC) organised at the village or mohalla level. The AEC organiser is envisaged as an activist worker responsible for running the AEC. A cluster of 8 to 10 AECs will be overseen by a supervisor whose performance in turn will be watched by the District Board of Education. What relationship this set up will have with the other grassroot institutions or local administration has not been spelt out. Political memories may play tricks of amnesia, but the bureaucratic memory is expected to act as the computer and to cough up the right answer when called upon to do so. It may be recalled that when, in 1952, Jawaharlal Nehru initiated the Community Development Programme, the responsibility for the formation and implementation of the programme was initially placed on the bureaucratic cadres with local leadership cooperating in an advisory capacity; but soon it was discovered to be a counter-productive strategy; and when Balwant Rai Mehta Committee proposed the reversal of roles, Nehru accepted its recommendations and went out whole-heartedly for the establishment of Panchayati Raj which was inaugurated in 1959 at Nagour (Rajasthan) with all the governmental fanfare. It is another story that it did not take off as visualized by Nehru since the State level satraps saw in the emergence of grassroot leadership a rival cadre of politicians and Nehru was no longer there on the scene to counteract their designs. The simple strategy adopted by the State legislators to maintain their hegemony was to postpone Panchayat elections indefinitely and thus to let the Panchayati Raj institutions to lose their validity and lapse into non-existence. Thus the dream of Gandhiji and Nehru enshrined in Article 40 of the Constitution was allowed to wither away. Later, Ashok Mehta Committee made bold to rususcitate it, when it presented a draft bill in its memorable report, providing for periodical elections to the Panchayati Raj institutions at the field level as a constitutional obligation as in the case of central and state legislatures. But Morarji's Government would have none of it and when the present writer along with a deputation of the Servants of the People Society met Desai, the then Prime Minister, the memorandum of the Deputationists to act on the Ashok Mehta Committee recommendations was summarily rejected by him on the facile plea that the matter related to the State Governments! Considering that his own position as the Head of the Government was shaky, he may be entitled to the benefit of the doubt, but surely, this cannot be the alibi of the subsequent Governments.

Rajiv Gandhi has recently pleaded with the State Governments to hold Panchayati Raj elections. But what prevents him from making this provision as mandatory by an appropriate amendment of the Constitution instead of letting it rest at the goodwill of the State Governments remains inexplicable. It does not require much intelligence to visualize that once the Panchayati Raj is vitalized and through it Gram Swarajya is established at field level a tremendous source of youthful human energy shall be released throughout the length and breadth of this great country which could be harnessed to its rebuilding. It is this energy which lies inert today that may be expected to demolish all barriers of ignorance, diffidence, lack of initiative and a sense of helplessness and dependence that pervades the rural scenario. Shades of feudalism and the 'Mai Baap Government' still dominate the countryside. The only way to fight them is to light the lamp of Gram Swarajya. This will take care of the war against illiteracy too in a shorter period than otherwise contemplated. For it is indisputable that elections have an educational value too and that after every election the electorate in India has grown taller at least by 10 centimetres. If, however, the aim of the Government is to absorb its local level political workers in the cadre of adult educators, as a former Government did when it organized a similar cadre of health workers, it is a different matter!

The Programme document, no doubt, admits that the past programmes had suffered due to excessive dependence on administrative structures and lack of involvement of mass organizations, media and the educational institutions. It, therefore, proposes to correct the imbalance by taking necesssary measures to secure active participation of political parties, mass organizations of workers, peasants, women, youth and students. One may legitimately ask what better agency than the

---

Former Vice-Chancellor, Gurukula Kangri Vishwavidyalaya, 5, Abul Fazal Road, New Delhi- 110001.

Gram Swarajya institutions can be created for the expected mass upsurge?

This document mentions two other sources of vast hidden strength, namely, the women and the youth, but proposes precious little as to how to tap this boundless energy. What are the concrete steps proposed to be undertaken to enlist the women and the youth as allies in this war against illiteracy?

The educational system today boasts of over 150 universities, 5,000 colleges and lakhs of schools spanning the country. Would it be too much to expect these institutions to act as Light Houses for the districts in which they are situated? Have we not waited too long to let them develop an elitist culture and to turn out products who look down upon the unfortunate persons who cannot enter these privileged portals? Are we even now not in a position to make bold to say that such fortunate ones owe a duty to their not so fortunate brothers, sisters, mothers and fathers? Why can we not legislate that a year's work in the National Adult Education Programme shall be a condition precedent for the award of a degree and for eligibility to any Government Service? Yes, why do we hesitate to take this very significant step, knowing full well that in several countries obligatory military service for the youth is the law? We may not go that far, but conscription for such a noble cause as the eradication of illiteracy is the obvious thing to do! This will release a tremendous source of youthful energy for this sacred task. In the process, the fortunate ones will get an opportunity to face and befriend their poorer cousins (the Daridra Narayan) and may thus be expected to develop altruistic tendencies and healthy social values.

Women's power is another source of unbounded energy not only for programming adult education, but also for preventing a relapse into illiteracy. An effective strategy must, therefore, be designed to undertake women's education upto the Primary level, at any rate, in the current plan.

If I were asked to make one single recommendation for programming adult education, I would unhesitatingly say, let us make every school/college/university in the country *responsible* for the adult education programme (including health education and environmental conservation and development) of a specified area lying in its neighbourhood. Let students and teachers wearing uniforms and badges of service walk out of their cloistered walls once a week/month, if you so please, and mingle with the local inhabitants to do actual physical work in the neighbourhood and also to organise public awareness functions. Goal: Zero illiteracy, zero pollution, zero unemployment, zero population growth. In this perspective, the value of promoting organizations like Boy Scouts/Girls Guides, Red Cross, NCC and NSS is self-evident. During my recent visit to UK, I found the local Boy Scouts in Derbyshire give such a call to the residents of different localities on different week days. Let us, for a change, take a good leaf out of the British School system! ☐

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6.	Careers in Communication	2.30
7.	U.P.S.C. Competitive Examinations	1.20
8.	Admission to Engineering (1st degree Courses)	2.60
9.	Careers in Printing	2.80
10.	Advertising for a Career	2.65
11.	Careers in Professional Management	2.65
12.	Careers in Teaching	2.25
13.	Careers in Banking Industry	2.75
14.	Careers in an Electric Supply Industry	1.90
15. *	Careers in Railway Industry	
16. *	Careers in Mass Communications	
17. *	Directory of Careers	
18.	Handbook on Training Facilities in Delhi	
19. *	Promotion of Entrepreneurship among Science and Technology Personnel	
20. *	Admission to Para-Medical Courses	

*Publications are under print.

NOTE: Copies of the publications can be purchased ONLY from the local Employment Exchanges, Authorised Book sellers or from the Controller of Publications, Old Secretariat, Civil Lines, Delhi — 110054.

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Educational Problems in Agricultural Universities

A Systems Approach

C.P. Ghonsikar*

Emergence of agricultural universities is an important event to mark a significant step in the improvement over the traditional textbook-cum-classroom lecture approach to educational programmes. Agricultural universities are engaged in imparting instructional programmes relevant to the needs of a region and initiating problem-oriented research programmes aimed at solving the economic, social and individual farm problems. The University expert advice is also made available to the State for carrying messages of improved technology to the sites of its application through T and V system. This is a remarkable development.

It is well conceived now that agricultural universities in India have provided valuable services to Indian agriculture as such by establishing new vistas of social mobility, developing a large trained and skilled manpower and generating modern technology which supported stable agrarian economy. However most observers feel that there is an urgent need to restructure the educational system in agricultural universities. There is a widespread dissatisfaction with deteriorating standards of instruction. Disruption of academic life is endemic, examination system is in shambles and the universities have been involved in factional and ideological politics. Any attempt to suggest reforms in educational system necessarily should consider the system as a whole giving equal priority to each of the components on a linkage basis rather than justifying actions on a particular phase in isolation.

Among the numerous recommendations made by the University Education Commission headed by Dr. Radhakrishnan was a plea for starting a "new kind of educational institutions" on the lines of land grant universities of the United States. The land grant idea has an emphasis on integrated approach to teaching, research and extension. It was only after twelve years of "Rural University" concept projected by Dr. Radhakrishnan Commission, that the Govind Ballabh Pant University of Agriculture and Technology was set up in 1960. Since then, there has been a steady increase in the number of agricultural universities. However, all of them have not developed along the lines charted out for them. Moreover, as matters are, the universities have become victims of politics. Narrow personal interests are often observed to inhibit healthy working of the university. Universities need to be saved from further emaciation because their role is directed to generate prosperity in the nation. If the same is unresolved, national capabilities will not be exploited.

Educational programes should bear testimony to its purpose and usefulness to the society. The success greatly depends on effective implementation of planned policies. This can be achieved by systems approach. It is concerned with smooth working of components together for an over all objective of the whole. Systems approach provides greater scope for identifying constraints and limitations, evolving alternatives, setting evaluation procedures and refinement of the issues. The basic components of educational programmes are: (1) Learning aptitude of the students; (2) Curricula; (3) Teaching; (4) Examinations and Evaluation; (5) Infrastructural facilities; and (6) Administration.

Learning Aptitude of the Students

Primary function of the universities is to facilitate student learning so that they may cultivate students' mind, skills and character in order to lead a purposeful life and contribute to the well-being and growth of society around them. The education process has to be such that the student is a participant and not just a recipient. It should involve equipping the student with knowledge skills, attitudes and values. The students of today are much more diverse in their attitudes, expectations, commitments and aspirations. They are required to be interested in learning. Selective admissions to a certain extent may help to build up learning environment on the Campus. A board should test scholastic aptitude and give ability rating by holding entrance examination. Right type of students to choicest courses (educational programmes) shall create right type of learning environment to achieve four elements viz. (i) the student must want something,; (ii) the student must appreciate and aim at something; (iii) the student must do something; and (iv) the student must get something.

**Marathwada Agricultural University, Parbhani.*

In order to strengthen the learning habit in the students, there should be an easy access to study material mainly books, exercise notebooks, record books, guides, abridge textbooks etc. It may be useful to develop a Book Bank by way of receiving book donations from Publishers, Guides, retired Professors, rich Libraries, such other agencies which could donate reading material either as gratis copies or on reasonable low rates. Such Book Banks can be a good source to students for ready consultation of the literature. The high prices of books and other reading materials these days inhibits students from purchasing their own books and reading materials. So establishment of Book Banks would lead to induce incentive on the part of the students and at the same time, it will provide a good facility for scholarly students.

Curricula

Educational programmes should be able to produce "performer" person. The courses must be relevant and significant not only to the students but to the social transformations and national development. Education for development means a constant restructuring of syllabi in the light of social and economic conditions and should bear on the contents to enlarge skill development in operational aspects of agriculture and must contribute to productivity. What is taught in the classrooms should have relevance and impact on the life outside. The curricula must include foundation courses and core courses pertaining to the profession viz. Agriculture, Veterinary Science, Agricultural Engineering, Dairy Science and Technology, Home Science, Fisheries etc. The curricula at graduate level must also give importance to applied courses, vocational courses and community service courses. Courses on Cooperation, Banking, Agricultural Business Management, Community Development, Urban and Rural Structures, Agro-industries, Environment Management, Human Behaviour, etc. should find place in the curricula of agricultural universities. The courses should be terminal and job oriented. They should give ample scope for the students to learn a trade or technique. The courses need to be so oriented as to make them industrially potential and meet technological needs of the region. Postgraduate courses should aim at technology generation with considerable research aspects. The curricula and courses may be designed after making a comprehensive socio-economic survey of the region. State Agricultural Education Commission be set up to identify educational requirements of the State. The curricula must maintain continuous interest in the learning process of the students and keep them busy throughout the educational programmes. Work experience studies will make the students all the more involved and active participants in the system.

Teaching

Teachers are operational manpower for any educational programmes in the University. Any educational policy should have effective and reliable delivery system (Teaching). Teaching is certainly a challenging profession. Teacher must be wizard to get student interested and develop motivation in them to learn. This is a hard task though, it is necessary to ensure effective teaching. The success of instructional programme depends on the teaching quality. Teachers must enjoy the teaching process. They should play this role willingly and conscientiously. And this is possible only with competent and committed teachers.

(a) *Recruitment :* This is a basic process and an aid to establish talented faculty. It is generally observed that weak faculty is not able to implement instructional programmes effectively. The present day system of teachers' recruitment is greatly influenced by kith and kin relationships and very often there is greater politicization in this process. The result is incompetent, disinterested and non-devoted teachers being recruited. Establishment of Regional/State Agricultural Services Recruitment Board (ASRB) may ensure selection of competent personnel. The agricultural universities should draw their technical manpower from the selections done by Regional/State ASRB.

(b) *Incentives and Promotions :* University teacher must necessarily upkeep his knowledge and understanding of subject speciality and must possess performance ability to conduct a course of study. Ample opportunities to university teachers may be provided to acquire improvements. It is therefore necessary to evolve a new instructional technology to equip teachers with talent and instructional skills. A liberal approach to faculty improvement programme need to be entrusted. The teachers may be provided facilities viz. : (i) Book grants to buy essential literature, (ii) Participation in State, National and International Seminars, (iii) Exchange visits to centres of advanced study/laboratories, (iv) Fellowships and grants-in-aid to conduct research projects, and (v) Foreign assignments either on contractual programmes or for specific training. Career awards may be instituted to give recognition to their worth and laudable achievements and to encourage them to attempt still higher standards.

There is a growing frustration among the university teachers on account of little opportunities in advancement of their positions and ranks. Egalitarian approach (seniority based) to promotions has, to a large extent, proved hinderance in building talented and enthusiastic faculty. The promotions based on assessment of academic performance after every five years, will give justice to an individual and the profession.

Examinations and Evaluation

In recent years, examinations and evaluation have become problem ridden affecting the standard of education and pose a great challenge to the academic bodies. With disturbed academic calendar on account of students' agitations and unwanted mass boycotts, examinations are ill-timed and conducted on restricted/reduced syllabi. Sometimes the purpose of continuous evaluation is defeated when all the examinations viz. quizes, mid-semester, laboratory and terminal examinations are rushed through or conducted simultaneously. Too many examinations in a semester is identifying the semester system as examination and evaluation process rather than educational system. The semester may have one examination during the semester time and second at the end as terminal one. The semester end or terminal examination must necessarily give a coverage to the whole syllabus or course content. The weaknesses of internal evaluation system may be overcome by external paper setting by a staff (other than course teacher based on question bank). This will avoid pressures and influences on grading and ensure unbiased evaluation. The question bank shall have incorporation of the whole course contents and the question paper may be drawn from two/three sets. The evaluation may also be done at a centralized place within a stipulated time. In a multicampus university, it is still easier to avail of the help of off-campus staff for examination and evaluation purpose. In any case there is a need to give external handling to internal evaluation system.

Infrastructural Facilities

The universities are established with extensive infrastructures having excellent facilities of buildings, laboratories, equipment, research farms etc. Besides educational facilities, the university should also make provision to create facilities for physical welfare of students, development of mental faculties and usage human labour. Co-curricular and extra-curricular activities need to be planned for physical, social, cultural, emotional and spiritual integration. The youth energy must be properly channelized and directed towards character building. Games and sports complexes need to be greatly improved to allow students to participate in such activities. The basic needs can be: 1. Swimming pool; 2. A theatre for regular projection of film shows, documentaries, educational films, performing cultural shows and dramas; 3. Hobby centre for creative jobs, 4. Yoga and meditation practice centre; 5. Indoor and outdoor stadia; and 6. Recreation gardens.

Besides core courses, short-term training/coaching courses may be started for voluntary participation during off curricular hours or vacation in activities like photography, printing and book-binding, preservation technology, typing etc. The university should organise efficient placement service and should not only help students to achieve educational attainments but also act as a guide for their future careers.

Administration

The universities rise with efficient administration, and fall on account of mis-management. The "backwardness" of universities generally reflect poor funding, incorrect policies, lack of response to social aspirations and political interference in their autonomous functioning. The Board of Management of the university should have members who are committed to academic principles and would be willing to give more of their time and experience for the development of the university. The university policy should commensurate with the perception and awareness of the needs and aspirations of academics. Administrative decisions should not frustrate the feelings and interests of their employees. A sincere dialogue must precede while evolving policy or making important decisions. A communication gap between the teachers and the Vice-Chancellor (Administration) should not be allowed to grow. A joint consultative group with equal representation to different categories of employees may be permitted to participate and share administrative matters. This group is besides regular statutory bodies and may function as informal consulting and advisory body to enlarge administrative vision. Mutual trust and confidence always add to the strength of administration and build responsibility with commensurate authority. □

CALENDAR OF EVENTS

Insertions for our column, Calendar of Events, are welcome. It will help early reporting of the event as also avoid unnecessary correspondence if the matter for insertion is submitted in our usual format under the heads: proposed dates of the event, title, objective, name of the organising department and name of the Organising Secretary/Officer to be contacted.

G.B. Pant University of Agriculture & Technology

PANTNAGAR-263 145, U.P.

ADMISSION NOTICE

A competitive entrance examination for selection of candidates for admission to the first year of the following academic programmes will be held on **Sunday the 3rd May, 1987 from 10 A.M.** at Agra, Allahabad, Delhi, Hyderabad, Lucknow, Roorkee, Varanasi, and Pantnagar Centres:

A-Bachelor's Degree Programme	Minimum Eligibility Qualifications	Age
1. B.Sc. Ag. & A.H. 2. B.Sc. (Forestry) 3. Bachelor of Fisheries Sc.	Intermediate Agriculture/ Science (Biology or Maths) from U.P. Board, Allahabad or equivalent examination.	22 years on 30-11-1987 (3 years relaxation for SC/ST/ BC candidates
4. B.V.Sc. & A.H.	Intermediate Agriculture/ Science with Biology from U.P. Board, or equivalent examination.	-do-
5. B.Sc. Home Science (for girls)	Intermediate Agriculture/ Science (Biology or Maths from U.P. Board, Allahabad or equivalent examination.	-do-
6. Diploma in Home Science (for girls)	High School in Science from U.P. Board, or equivalent examination.	-do-

Candidates appearing in the above Board's examination in 1987 are also eligible to appear in the entrance examination provided their results are positively declared by 5th July 1987 otherwise they will stand disqualified.

B-Master's Programme in 44 Majors in the areas of :	Minimum Eligibility Qualifications
1. Agriculture 2. Veterinary Sciences 3. Engineering & Technology 4. Home Science 5. Basic Sciences; and 6. Food Science	Bachelor's Degree in Agriculture/ Veterinary Sciences/Engineering & Technology/Home Science/Basic Sciences, as the case may be, in First Division or an equivalent OGPA from a recognized University with not more than one third division at High School or Inter level.

C-Ph.D. Programme in 29 Majors in the areas of :	Minimum Eligibility Qualifications
1. Agricultural Sciences 2. Veterinary Sciences 3. Engineering & Technology 4. Food Sciences; and 5. Basic Sciences	Master's degree in Agriculture/Vety. Sciences/ Engineering & Technology/ Food Science/ Basic Sciences, as the case may be, in First Division, or an OGPA of 4.00 out of 5.00 from a recognised University with at least second class in Bachelor's degree and not more than one third division at High School or Inter level.

For full details, the Information Brochure and application form (Prescribed separately for Undergraduate, Master's and Ph.D. programmes) can be obtained by sending an 'ACCOUNT PAYEE' Bank Draft for Rs. 10.00 in favour of G.B. Pant University of Agriculture & Technology, Pantnagar on State Bank of India, Pantnagar Branch (Code 1133) or United Commerical Bank, Pantnagar, with a self-addressed envelope of 10″ × 7″ size bearing postage stamps of Rs. 4.00 by Unregistered Parcel. The application form can also be obtained on payment in cash at the Counters set up in the Admission Cell at Pantnagar and in the GBPUA&T, Camp Office, 8 Cooper Road, Lucknow.

LAST DATE FOR RECEIPT OF APPLICATIONS: 20th March, 1987 with prescribed fee of Rs. 50.00.

From 21st March to April 4, 1987 with an additional late fee of Rs. 50.00 for Pantnagar Centre only.

O.S. Misra

REGISTRAR

Renunciation and Service

Hon'ble Justice P.N. Bhagwati, Former Chief Justice of India, laid great emphasis on the time honoured Indian values of *Tyaga* and *Seva* in the integrated development of the individual while delivering the Convocation Address at the 23rd annual convocation of the Shivaji University, Kolhapur on 30th December 1986. We are pleased to publish excerpts of this exalting address.

The entire future of our country, its growth and development—social, economic and political—depends on the nature and quality of education imparted to the youth. There was a time during the freedom movement when our political leaders used to go to the educational institutions and motivate and inspire the students, but unfortunately today our students are neglected; often they are used merely as pawns in the political game. It is, therefore, essential that those who have dedicated their lives to the service of the people and who have actualised the values of *Tyaga* and *Seva*, renunciation and service, in their own lives must be invited to the educational institutions and the students must be exposed to their influence rather than be led away by partisan politics.

Convocation

. . . . . In our country today our sense of values has become somewhat distorted. The acdemicians do not get that place of honour and prestige which they should occupy in any healthy civilised society. There was a time in our country when learning and scholarship were valued highly and respected profoundly. The profession of teaching was a highly respected profession and all sections of the society held it in great esteem. The teacher was looked upon as a *guru* and he came only after the parents in respect and veneration. So high was the place accorded to learning and scholarship that Pt. Jagannath said in his 'Bhamini Vilas':

अन्या जगत् हितमयी मनसः प्रवृत्तिः
अन्यैव काऽपि रचना वचनावलीनाम् ।
लोकोत्तरा च कृतिराकृतिः आर्यह्रद्या
विद्यावतां सकलमेव गिरां दवीयः ॥

This represented the general approach of every one in the country. But since the last two or three decades our values have undergone drastic change and men of learning and scholarship do not enjoy the position and respect which they used to do before and the teaching profession has entirely lost its due place in the scheme of things, social as well as cultural. There is greater respect for political power and wealth than for academic values. This is an unhealthy state of affairs and unless our people learn to develop a proper sense of values, the future of our country does not promise to be hopeful and encouraging. This can be achieved only if our younger generation is actuated by a sense of dedication and a burning desire to puruse the path of learning and scholarship. In should not be difficult for our younger generation to do so since our entire cultural tradition is built on the foundation of *tyaga* and *seva* and these are virtues which have been preached to us by our great men from time immemorial.

We have always believed that *tyaga*, that is, renunciation and not *bhoga*, that is, pleasure-seeking, should be the motivating force for our actions. One of our Upanishads says:

न ध्यानेन न प्रजया त्यागेनैव अमृतत्त्वमनशुः ।

'Not by meditation, nor by prosperity but by renunciation alone we can attain immortality'. But what does this renunciation mean? It does not mean that you must give up the world and go and live in a forest or cave. Our culture does not preach an escapist philosophy. It is not negative in its approach. It is full of positive dynamism. It has, as always, acted as a great stimulus to full and complete development of all facets of life. That is why when we look at the past history of India, we find her stupendous vitality, her inexhaustible power and joy of life and her absolute prolific creativeness in all fields of human endeavour. Look at our famous temples. What exquisite architecture and culture we find etched in stone depicting richness of life. We have throughout history distinguished ourselves in fine arts, music, dance and literature. It is symbolic of the stupendous vitality imparted to us by our culture that Upanishads address men as अमृतस्य पुत्राः । children of immortality. The renunciation which our Upanishads speak of is no renunciation of work but renunciation of attachment. Work we must, or else the social and economic order will collapse.

But work must be done without attachment in a spirit of dedication. What is, therefore, required of us is not work-renunciation, but self-renunciation, renunciation of our little self, of our ego, and manifestation of the higher self in us and the positive expression of this *tyaga* is *seva* or service. We must rise above our little ego and express our true self, the self that realises its oneness with all and gives itself away to all in love and service. These have been the eternal values which have inspired us through the ages and these values have sustained us over the last five thousand years when other civilizations and cultures have perished long ago and now live only in the pages of history or the archives of the museum. That is why Swami Vivekanand said, as far back as 1897, on his return to India from the west:

> "The longest night seems to be passing away, the sorest trouble seems to be coming to an end at last, the seeming corpse appears to be awaking....India, this motherland of ours..from her long deep sleep. None can resist her any more; never is she going to sleep any more; no outward powers can hold her back any more; for the infinite giant is rising to her feet."

These were the prophetic words of the great Swami. But for the time being they seem to have become unreal. The great values that we cherished in the past unfortunately appear to have been submerged by self-centredness, self-aggrandizement, greed for wealth and power and exploitation. It appears that since independence we have cared more to exploit our newly won freedom for selfish purposes than to serve its cause or enhance its value. We seem to have developed a mood of complacency, an inordinate love of money, ease and comfort, and a suicidal tendency to indulge in narrow parochial interests and petty issues. We have been indulging, in the name of democracy and under the guide of promoting it, in every conceivable form of indiscipline, on grounds of individual or group interest, regardless of the national interest. We have not learnt the lesson that self-discipline and tolerance are essential in a democratic way of life and that desired changes are to be brought about by democratic and constitutional means and not by agitations and violence. No doubt some of these lessons are being burnt into our souls today and we are beginning to realise that no nation can march forward without discipline and character. But what is most necessary to impress upon us all is that today, more than ever before, we need to inspire ourselves with the twin ideals of *tyaga* and *seva.* We cannot build this great country, we cannot destroy its backwardness and make of it a truly progressive and enlightened country unless our people are once again imbued with the spirit of renunciation and service. We have before us the great example of Mahatma Gandhi, the Father of the Nation. He rekindled in us these great values of renunciation and service and through them he brought us our freedom. Now, having secured our freedom, we must not forget these values. The best of human achievements proceed from us when we think least of ourselves. "He that findeth his life shall lose it", says Jesus, "and he that loseth his life for my sake shall find it." This has been the teaching of the great masters throughout history, and I would earnestly appeal to you, my young friends, to bear this teaching in mind and dedicate yourselves to the service of the country in fullest measure. Whether you have little ability or great ability, or you have one talent is not of much importance. What you do with what you have is what counts. There is joy in being wedded to something greater than yourself. It is divine to be gripped by higher loyalties. The secret of an integrated life is to choose a cause that commands the best in you, something that you believe with all your heart and then to give yourself up to that cause with all your mind and strength. That is what I would like you to do —to submerge your little ego, to subordinate your personal interest and surrender yourself to the cause of India's millions.

There are four types of individuals described by Bhartrhari in the following words in his *Nitisataka:*

एते सत्पुरुषाः परार्थंघटकाः स्वार्थान्
परित्यज्य ये ।
सामान्यास्तु परार्थमुद्यमभृतः
स्वार्थाविरोधेन ये ॥
तेऽमी मानुष राक्षसाः परहितं स्वार्थाय
निघ्नन्ति ये ।
ये निघ्नन्ति निरर्थकं परहितं
ने के न जानीमहे ॥

The first type, those who practise the ethics of self-effacement and universal love, of renunciation and service, constitutes a small minority in any society; they are those who seek death so that others may live and thrive. The majority of of people, the सामान्याः, the generality, however, belong to the second type, namely, those who practise the ethics of what modern political philosophy calls enlightened self-interest. To the third type belong all these who indulge in all kinds of anti-social practices, practices inherited from past ages and practices newly invented in this age, such as bribery, corruption, food and drug adulteration and so forth. These are described by the poet as मानुष राक्षसाः। The fourth and last category is the poet's despair. It is a class entirely unethical, and happily a minority in any society, given to wanton anti-social violence and destruction. We find that unfortunately today the third and the fourth types of people are increasing in numbers and are dominating the social and economic scene. That poses a challenge to our education and religion, our political and social life. This challenge has to be met by us by mobilising all the ethical and spiritual resources of the nation, and in this task the young men and women of our country have to play a very important part. You will soon enter the mainstream of the active life of the nation and, there, occasions will arise when you will be faced with situations which will test to what type of Bhartrhari's category you belong. It will be very easy to succumb to the temptations of self-interest, and by practising self-deception, what is called आत्मवंचना, you will even be able to find reasons to justify what you wish to do. But you will have to be constantly on your guard lest the anti-social practices of bribery, corruption, nepotism, black marketing, dowry etc. overpower you and make you their slave. If you slide into these anti-social practices, you will not only harm yourself but also cause immense injury to the nation. Do not forget that you are a part of the nation and whatever you do is bound to reflect on national interest. If you resort to these anti-social practices, you will weaken the fabric of the nation and corrode its vitality and strength. Please, therefore, try to see that you do not become मानुष राक्षसाः । That is a type which must be severely thinned, if not eliminated. You may pursue the path of enlightened self-interest which is a path of the second type of individuals, but try to inject more enlightenment into your self-interest so that you live more and more for others and less and less for yourself.

My young friends, ours is a very poor country. There are millions of people in our country who are living in conditions of abject poverty. They have hardly any food to eat, any clothes to wear or any shelter over their head. They are living a sub-human existence. When I think of these starving millions of our countrymen, I ask myself in tears: when will their misery end; when will their suffering cease; when shall we see a smile on their hollow cheeks and sunken eyes. There is an urgent necessity for everyone of us to dedicate ourselves to the task of service of these poor downtrodden masses.

Let me close by recalling the words of that great visionary and builder of modern India, Jawaharlal Nehru:

> "The service of India means the service of the millions who suffer. It means the ending of poverty and ignorance and disease and inequality of opportunity. The ambition of the greatest man of our generation has been to wipe every tear from every eye. That may be beyond us, but as long as there are tears and suffering, so long our work will not be over." □

Indian Council of Agricultural Research

Dr. Rustom Darasha Asana

Endowment Prize for Research on Plant Physiology, Plant Breeding Soil Chemistry/Physics, Agricultural Physics, Agronomy and Agricultural Engineering Bearing on Improvement of Knowledge for Practice of Dry Land Agriculture for 1986-87

Nominations are invited for the "Dr. Rustom Darasha Asana Endowment Prizes for Original Research" for the triennium 1986-89 carrying an amount of Rs. 5,000/- (Rupees five thousand only) in cash or kind or both, a citation and a certificate. The award is given once in three years to Indian scientists for outstanding original research on Plant Physiology, Plant Breeding, Soil Chemistry/Physics, Agricultural Physics, Agronomy and Agricultural Engineering bearing on improvement of knowledge or practice of dry land agriculture. Only results of researches/contributions made during the five years preceding the year of award shall be considered for the award.

Nominations can be made amongst others by Vice-Chancellors of agricultural universities/general universities with faculties of agricultural or biological sciences, Directors of research institutes including principals of agricultural and veterinary colleges, Presidents of scientific societies and academies and heads of the principal scientific establishments in the country such as CSIR, BARC, etc.

Nominations for the award should be supported by a statement of work achievement accomplished or performed by the candidate who is being nominated and a reasoned justification for the nomination together with reprints of publications or supporting data. Applications without reprints of publications are liable to be rejected at the preliminary scrutiny.

The last date for receiving nominations for the award is **15th May, 1987**. Four copies of the proposals on the prescribed proforma for the award should be sent in a sealed cover marked 'Confidential' to Shri Kishori Lal, Additional Secretary (A), Indian Council of Agricultural Research, Krishi Bhawan, New Delhi, 110001. The copy of the proforma can be obtained from him by sending a self addressed envelope in the size of 27 cm x 12 cm. Applications/nominations received without four sets of reprints of publications are liable to be rejected at the scrutiny stage.

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National Seminar on Physical Fitness & Sports Standards in Universities

The Association of Indian Universities will organise, in collaboration with the Mohan Lal Sukhadia University, a National Seminar on Physical Fitness and Sports Standards in Universities on 9-10 May 1987 at Udaipur.

The climate generated by IX Asian Games in 1982 at Delhi had raised our hopes and it was expected that India was on the way to greater achievements in international sports. The subsequent developments, especially the poor performance of Indian sportsmen at the international competitions, have proved it otherwise. "What ails Indian Sports?" is being debated everywhere, and the urgency for improving standards in sports and physical fitness is realised in every quarter.

The National Policy on Education has also emphasised the need for making sports and physical education an integral part of the curriculum in schools and colleges. A nationwide infrastructure for physical education, sports and games should be built up into our educational edifice. What the country really needs is a system which can promote an integrated development of body and mind. One of our major weaknesses has been that the schools, colleges and universities have not played their roles effectively in this direction. Most of them lack resources, their infrastructure is inadequate or sub-standard and sports facilities are scarce. Indeed, sports appears to have been placed in the lowest priority in the total scheme of school and college education. The utter neglect of the physical efficiency of our youth in educational institutions and non-availability of resources for sports have been responsible for this sorry state of affairs. It is proposed to identify various problems which impinge upon the sports performance and to deliberate on issues that have significant bearing on mass awakening and motivation for promoting sports and physical education.

Themes

The deliberations at the Seminar will cover the following themes:

1. Sports Infrastructure in Rural and Urban Areas

The discussion will focus on the availability and requirement of sports facilities in different areas—urban and rural, humid and dry, plains and hills. The provision of minimum unit requirements of facilities, depending upon the popularity of various games and sports in the specific areas, will also be discussed.

2. Student Motivation and Incentives

To encourage mass participation of youth in sports activities, it is imperative to motivate them through a chain of incentives like scholarships, bursaries, freeships, and special diet allowances. The feasibility of making sports an academic discipline, preferential treatment in job opportunities and related question of raising the status of physical education would be debated.

3. Coaching and Competitions

For success in sports competitions, coaching plays a crucial role. The discussions under this theme would focus on the assessment of the present system of coaching for national and international competitions. The question of evolving a core curriculum for physical education, the standardisation of syllabi and its adoption throughout the country will be discussed. The scheduling of the domestic competitions would also be reviewed.

4. Linkages between Sports and General Education

The need for providing effective linkages between sports and general education on the one hand and sports activities in schools with the colleges/universities on the other, cannot be under-estimated. While the schools are primarily responsible for providing the basic inputs to the sports requirements of the higher level institutions, the latter are responsible for improving the efficiency and proficiency in sports in schools by way of providing highly trained instructors and coaches. Ways and means of establishing such linkages would be explored so that the goals envisaged in the New Educational Policy are realised.

5. Norms of Physical Fitness

A minimum level of physical fitness is necessary for any individual to effectively participate in any game or sports and, in the larger context, to be a good all-round student. The methods of improving general health and the question of specifying norms of physical fitness for different age groups of students and for various games will be debated. Modern concepts of sports science will also be discussed.

PROGRAMME

May 9, 1987 (Saturday)

Registration of Delegates	9.00 A.M.
Inauguration & Exhibition	10.00 A.M.
Session I	11.15 A.M.
Session II	2.30 P.M.

May 10, 1987 (Sunday)

Session III	9.00 A.M.
Session IV	11.15 A.M.
Session V	2.30 P.M.
Valedictory Function	5.15 P.M.

VENUE

The venue of the seminar will be Mohanlal Sukhadia University, Udaipur.

PARTICIPATION

Delegates from universities, colleges, organisations dealing with sports and physical education, Department of Youth Affairs and Sports, Netaji Subhash National Institute of Sports, Lakshmibai National College of Physical Education and Sports Authority of India are invited to participate in the seminar.

Name with designation and postal and telegraphic address of the sponsored delegates should reach the Convener not later than **31st March, 1987.**

EXHIBITION

An exhibition of literature on sports and physical education such as books, magazines, journals, charts, models and other materials which might present the recent advances in sports science and sports medicine will be organised on the occasion.

PAPERS

Papers, in duplicate, neatly typed on one side of the quarto bond paper in double space, not exceeding 2,500 words and accompanied by a summary in not more than 300 words, should reach the Convener latest by **31st March, 1987.** The papers should not have been published or presented at any previous seminar or conference.

The official language of the seminar will be English.

Further details can be had from the convener.

CONVENER

Shri G.S. Sivia
Deputy Secretary (Sports)
Association of Indian Universities
AIU House, 16 Kotla Marg
New Delhi - 110 002.
Telegram : "ASINDU"
Telephones 3312305, 3313390,
3312429, 3310059.

ASSOCIATION OF INDIAN UNIVERSITIES

AIU HOUSE, 16 KOTLA MARG, NEW DELHI-110002

Applications from Indian citizens for the following posts are invited in the prescribed form available on payment of Rs. 2/- from the Office of the Association of Indian Universities, 16 Kotla Marg, New Delhi-110002.

1. **Research Officer** : (One) : Scale Rs. 1100-1600.

   A first class post-graduate in Sciences, Mathematics or Statistics with atleast five years experience of research in the area of examinations in colleges/universities.

   Desirable : Good knowledge of computer applications with experience in computerisation of examinations and university administration.

2. **Research Officer** : (One) : Scale Rs. 700-1300 (Temporary).

   Candidates should have first or high second class Master's degree in Economics or in Social Sciences with at least 5 years' experience in educational research. Preference will be given to candidates in the area of Economics of Education.

3. **Research Associate**: (Two) : Consolidated salary of Rs. 2000/- p.m. Project posts, temporary for one year.
   Candidates must have good academic record with 1st or high 2nd Class Master's degree in Education or Social Sciences and should have done independent work in the field of Economics of Education.

4. **Research Assistant** : (One) Revised Scale Rs. 1400-40-1800-EB-50-2300.
   Candidates should have first or second class Master's degree in Social Sciences preferably in Economics with atleast 2 years experience in educational research. Candidates having Mathematics/Statistics/Economics at graduate level as optional subject will be preferred.

5. **Junior Steno** : (Two) : Project posts, temporary for one year.
   Higher Secondary with a minimum speed of 80/40 w.p.m. in Shorthand/typing. Consolidated salary Rs. 1200/- p.m.
   Desirable : Atleast two years experience in a reputed organisation.

For posts at Sl. No. 1 and 2 revised Govt. of India scales will be available as and when Govt. orders are issued.
All posts (except project posts) carry usual allowances generally at the Central Govt. rates. Relaxation in any of the requirements may be made in exceptional cases. The Association reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant. Canvassing in any form by or on behalf of a candidate will be a disqualification.
Applications complete in all respects should reach the office by **9th March, 1987.** Applications received after the last date or without complete information may not be entertained. SC/ST/Ex-servicemen will be given preference.

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
March 2-5, 1987	Seminar on Recent Advances in Concrete Construction	To provide an opportunity for exchange of experience amongst practising engineers, consultants, research workers and academics and to guide the research and development activities in the area of concrete construction.	Department of Civil Engg., IIT, Madras.	The Coordinator, SNUPORT-REDECC 1987, Structural Engg. Laboratory, Department of Civil Engg., Indian Institute of Technology, Madras.
March 5-6, 1987	Seminar on New Education Policy	To evaluate the New Education Policy and Programme of Action documents	Zakir Husain Centre for Educational Studies, Jawaharlal Nehru University, New Delhi.	Dr. (Mrs) Sushila Singhal, Associate Professor, Zakir Husain Centre for Educational Studies, JNU, New Delhi - 110067.
March 7-8, 1987	Seminar on New Education Policy and its application to the Mineral Industry	To evaluate the content and method of Mineral Engineering Education vis-a-vis the New Education Policy.	ISM Teachers Association, Dhanbad.	Dr. S.K. Basu, Department of Humanities & Social Sciences, Indian School of Mines, Dhanbad - 826004.
March 23-27, 1987	Short term Course on Base Metals Identification and Delineation through Satellite Remote Sensing	To acquaint the participants with the techniques of Image Processing and Digital Analysis of Landsat Data with special emphasis on the application of techniques to the fields of Water Resources, Pedology, Forestry, Earth Sciences and Mineral Resources	Centre of Studies in Resources Engg., IIT, Bombay.	Dr. T.V. Pavate, Chief Project Engineer, Training Extn. & Project Cell, R.S.. No. VI, C.S.R.E., Indian Institute of Technology, Powai, Bombay.
May 9-10, 1987	**National Seminar on Physical Fitness and Sports Standards in Universities**	**To identify various problems impinging upon sports performance and to deliberate on issues having significant bearing on mass awakening and motivation for promoting sports and physical education.**	**Association of Indian Universities (AIU) in collaboration with Mohanlal Sukhadia University, Udaipur.**	**Shri G.S. Sivia, Dy. Secretary (Sports), Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi - 110002.**
September 6-19, 1987	**International Seminar on University Administration**	**To consider the impact upon administration of changes in both the external and internal environment of universities and the development of appropriate styles, structures and management in administration**	**The British Council, London (to be held at the University of Salford, Salford, England)**	**Mr. Stuart R. Bosworth, Registrar, University of Salford, Salford, England M5 4WT.**

JNU Offers New Courses

Jawaharlal Nehru University (JNU) has decided to introduce two new Ph.D. Programmes of Study from the Academic Session 1987-88. One Programme which is proposed to be conducted at the School of Physical Sciences pertains to research and teaching programmes in border line areas of Physics and Chemistry. For the present the emphasis will be on topics of Chemical Physics, Condensed Matter Physics, Non-equilibrium Statistical Mechanics, Stochastic Processes and Nonlinear Dynamics.

The other Ph.D. Programme will be in the Special Centre for Biotechnology where facilities are available for pursuing research in the areas of: (a) Tropical Disease Pathogenesis, Antigen Identification, Development of new Vaccines; (b) Photosynthesis and Plant Molecular Biology; (c) Molecular Genetics: Gene Transfer and Expression in Eukaryotic Systems; (d) Oligo Nucleotide Synthesis, DNA Diagnostics Expression of Synthetic Genes and Protein Engineering. The Programmes at the Centre are interdisciplinary in nature. So far only two-year M.Sc. Programme in Biotechnology was available at JNU.

Entrance examination for admission to these two doctoral programmes will be held between May 21 and 23, 1987 at 24 centres all over the country.

The University has also revived the five-year integrated MA Programme in Persian in the Centre of African and Asian Languages with entry points in the first and fourth years. So far the entry point in this Programme was only fourth year.

UGC Assistance for Student Amenities

The University Grants Commission is understood to have agreed to sanction a special grant of Rs. 10 lakhs to Nagarjuna University during the current financial year for student amenities. This was revealed by the Vice-Chancellor of the University, Prof. G.J.V. Jagannadha Raju recently.

Learn Sanskrit in Telugu Medium

Sri Venkateswara University is reported to have introduced Telugu medium for postgraduate course in Sanskrit. Hitherto, the University had been conducting examination for Sanskrit Postgraduate students in English and Sanskrit.

News from Agril. Varsities

Impact of Green Revolution

Dr. Sukhdev Singh, Vice-Chancellor of the Punjab Agricultural University inaugurated a 3-day Regional Seminar on Social, Economic and Political Implications of Green Revolution in India at Ludhiana recently. In his address he regretted that the gains of green revolution had not been utilized by the rural people for improving their quality of life. He said that the additional income generated as a result of increase in farm production had been spent on unproductive purposes. The Vice-Chancellor said that in Punjab the production of wheat had touched 110 lakh tonnes and that of paddy 58 lakh tonnes in 1986 which was an all-time record in the agricultural history of the world.

Dr. B.S. Dhillon, Dean of Postgraduate Studies of the University said that the rural artisans had been greatly benefited by the Green Revolution which was evident from a number of workshops started in the rural areas.

While presiding over the concluding session, Dr. V.P. Dubey, Registrar of the University, emphasised greater employment opportunities for rural youth, diversification in agriculture and vocational education. He said that energies of rural youth must be properly channelised by providing remunerative jobs. As agricultural occupation is losing its attraction because of lesser remunerations, concerted efforts are needed to introduce more self-employment generating schemes on the pattern of NREP, TRYSEM. To provide means of gainful employment, he also stressed the need for rural industrialisation.

Twenty-six experts from the States of Punjab, Haryana, Himachal Pradesh and Jammu & Kashmir and the Union Territory of Chandigarh participated in the seminar which was jointly organised by the Indian Council of Social Sciences Research and the Department of Extension Education of the Punjab Agricultural University.

Faizabad Hosts Vegetable Workshop

Narendra Deva University of Agriculture and Technology, Faizahad organised, in collaboration with the Indian Council of Agricultural Research, the IX All-India Coordinated Vegetable Workshop at Faizabad from 13-16 January, 1987. The workshop was inaugurated by the State Agriculture Minister, Choudhary Narendra Singh. Over 180 scientists from all over the country participated in the deliberations of the workshop.

The participants discussed in ten sessions the various aspects relating to Vegetable Science, viz., Genetics, Agronomy, Plant Pathology, Entomology, quality production, future course of action and the notification of new varieties. Keeping in view the different conditions and requirements, the following new varieties developed by various Institutions were recommended: Brinjal (long) H4, KAT4, ARU-2C, Brinjal (round)-Pant Ritural Type, Cabbage-ARU Glory, MCH-1, Capsicum-Californial Wonder, HS-201, and Chillies-K-2.

Dr. Kirti Singh, Vice-Chancellor, who presided over the plenary session, explained the various aspects of the Vegetable Science and emphasised the need for improvement in vegetable production. He expressed his concern that the vegetable production was not keeping pace with the growth of population. Discussing the export of high quality vegetables, he stressed the need for providing the vegetable varieties suited to the need of the consumers.

Dr. R.K. Singh, Director of Research of the University highlighted the achievements of the Narendra Deva University in the field of Vegetable Science. He invited the attention of the Vegetable Scientists towards the development of effective and economical techniques for increasing vegetable production. He emphasized that the seed production agencies like NSC, TDC and others should popularize the new varieties instead of producing the seeds of old varieties.

Presenting the project report, Dr. H.S. Gill, Project Coordinator, ICAR, described the different projects currently conducted by I.A.R.I. Dr. G,L. Kaul, Deputy Director General, I.C.A.R. discussed the problems and programmes of horticulture with special emphasis on Vegetables.

Pongal Gifts to Farmers

The Tamil Nadu Agricultural University has released 13 new crop varieties as "Pongal Gifts" to farmers. They include one in rice, one in sugarcane, four in millets, two in pulses, one each in oilseed, fruit, vegetable, edible mushroom and aromatic crop. These are high yielders besides being resistant to major pests and diseases.

The new varieties are : Rice TPS. 2; Sugarcane Co. C86062; Ragi TRY. 1; Samai Paiyur. 1; Panivaragu CO. 4; Tenai K. 3; Blackgram Vamban. 1; Blackgram ADT. 4; Groundnut ALR. 1; Hybrid Bhindi CO.2; Apple Kodaikanal Beauty; Greranium Kodaikanal. 1; and White Oyster Mushroom CO. 1.

Virus-Free Bhindi

The Punjab State Variety Approval Committee has released a new high-yielding virus-resistant variety of bhindi Punjab-7 for general cultivation in Punjab.

Evolved by M.R. Thakur, Vice-Chancellor, Dr. Y.S. Parmar University of Horticulture and Forestry, Solan and S.K. Arora, Olericulturist in the Department of Vegetable Crops, Landscaping and Floriculture of the Punjab Agricultural University, the new variety is resistant to yellow mosaic virus, a serious menace that hampers bhindi production throughout the country. The fruits of this variety are medium long, green, tender and have five ridges. It gives on an average 40 per cent more fruit yield than 'Punjab Padmini' and 80 per cent more than 'Pusa Sawani' under severe infection of yellow-vein mosaic virus. The average marketable yield potential of the variety is 45 quintals per acre.

News from Abroad

Climatic Links Between India, Africa and Australia

Australian researchers have found that the important river basins in India, Africa and Australia have had the same flood years and drought years during the past century. Their study shows strong climatic links between the Krishna River catchment in India, the Nile River catchment in Africa and the Darling River catchment in Australia.

These results fit closely with recent research which links the warming of sea water off Peru in December, known as the El Nino effect, with a weakening of the easterly Pacific trade winds. Every time El Nino conditions prevailed, droughts occurred in the Darling, Nile and Krishna valleys.

The study is part of a wider research program—under the leadership of Professor Martin Williams, of the Department of Geography at Melbourne's Monash University, and biologist Dr. Don Adamson, of Sydney's Macquarie University—which aims to build up a picture of world climate over the past five million years.

The El Nino event is just one link in a climatic chain which has widespread impact. El Nino seems to be a consequence of a much wider climatic effect known as the southern oscillation, when the wet season trade winds do not come as far south as usual.

Professor Williams said that in normal years, the start of the wet season in tropical Australia in November is heralded by severe convectional storms. Heating by the sun warms the ground air over Indonesia, which rises, creating a low-pressure system. But in certain years the pressure in the area remained high and the sea surface temperature abnormally low, he said. This was associated with a failure of the easterly central Pacific trade winds, which normally guide a warm current down the east coast of Australia, bringing rain.

On the other side of the Pacific, without the easterly winds to take warm surface water away from the Peruvian coast, the usual nutrient-rich upwelling of cold water is smothered, leading to the unusually warm water and winds around Christmas time. This, in turn, means poor anchovy fishing in Peru and floods in California.

The links appear to extend to the appearance or otherwise of the Indian monsoon and to the track of central Pacific cyclones.

The group's research suggests that the cycle of droughts leading to desertification—while it might be worsened by human activity such as overgrazing—is basically a climatic process, linked to the southern oscillation.

Sports News

Varsities' Team for National Marathon & Walking Championship

The following athletes have been selected to represent Indian Universities in the forthcoming National Marathon and Walking Championship to be held at Calcutta on Feb. 28 and March 1, 1987. The selections have been made on the basis of the performance in the last Inter-University Athletic Meet organised at Allahabad University.

MEN

(1) Bhimlal (Allahabad University); (2) Y.B. Khatke (Shivaji University).

WOMEN

(1) Mrinalini (Nagpur University)

(2) Rajshree (Delhi University)

Shri Sheesh Pal Singh, Athletics Coach, Allahabad University, will be training these athletes at Allahabad before the National Championship and will also accompany the team as Coach-cum-Manager.

We Congratulate...

Prof. R.M. Sethunarayanan who has been appointed as Vice-Chancellor of the Annamalai University.

CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY AND EXAMINATIONS

Applications are invited from College/University teachers for admission to Correspondence Courses in Evaluation Methodology and Examinations at Basic Level, Intermediate Level and Advanced Level/Special Professional Course. The duration of each of the three courses is six months. A personal 'Contact Programme' for three days is planned for each of the three courses. Universities/Institutions sponsoring candidates can meet the registration/course fees from out of unassigned grants by UGC.

Request for prospectus and application form accompanied by a crossed Indian Postal Order for Rs. 10/- drawn in favour of the Secretary, Association of Indian Universities and a self addressed stamped envelope (Re. 1/-) should reach the undersigned. Last date for receipt of application is **15th March** for non-sponsored and **26th March**, 1987 for sponsored candidates.

Project Director (Exam.)
Association of Indian Universities,
AIU House, 16 Kotla Marg,
New Delhi - 110002

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles culled from Periodicals received in AIU Library during January, 1987.

EDUCATIONAL PHILOSOPHY

Mouritsen, Maren E. The university mission statement: A tool for the university curriculum institutional effectiveness and change. *New Directions Hr. Edn.* (55), 1986, 45-52.

Thomas, Murray R. Assessing moral development. *Ednl Res,* 10(4), 1986, 347-476.

EDUCATIONAL PSYCHOLOGY

Boekaerts, Monique. Motivation in theories of learning. *Ednl Res.* 10(2), 1986, 129-41.

Busse, Thomas V and others. Factors underlying teacher perceptions of highly gifted students: A cross-cultural study. *Ednl Psy Measurement* 45(4), 1986, 903-15.

Keeves, John P and Larkin, Anthony I. The context of academic motivation. *Endl Res* 10(2), 1986, 205-13.

EDUCATIONAL SOCIOLOGY

Diem, Richard A and Searles, John. Social responsibility in technological environments. *Computer and Edn* 10(1), 1986, 215-9.

EDUCATIONAL PLANNING

Adams, Dennis M and Hamm, Mary. Filling the leadership vacuum: The need for a national educational plan. *Ednl Record* 67(4), 1986, 21-3.

Jacob, Plamthodathil S. New educational policy: A view from the Grassroots. *New Frontiers Edn* 16(3), 1986, 19-29.

EDUCATIONAL ADMINISTRATION

Beukema, Phillip L. Looking to the future: Implementation of a five-year plan. *New Directions Hr Edn.* (55), 1986, 91-8.

Bothwell, Lin. The human factor for optimal solutions. *New Directions Hr Edn* (55), 1986, 73-9.

Loo, E.H. and others. A heuristic approach to scheduling university timetables. *Computers and Edn* 10(3), 1986, 379-88.

Oliva, L. Jay. Faculty rise to the challenge grant. *Ednl Record* 67(4), 1986, 44-6.

Ping, Charles J. Recognizing problems in state universities. *New Directions Hr Edn* (55), 1986, 9-16.

CURRICULUM

Van Eiji, P.J. Modular programming of curricula. *Hr Edn.* 15(5), 1986, 449-57.

TEACHERS & TEACHING

Lane, N.R. and Lane, S.A. Rationality, self-esteem and autonomy through collaborative enquiry. *Oxford Rev Edn* 12(3), 1986, 263-75.

Lovelock, Christopher H. Teaching with cases. *New Directions Cont Edn* (30), 1986, 25-35.

Patrick, Helen. From cross to CATE : The universities and teacher education over the past century. *Oxford Rev Edn* 12(3), 1986, 243-61.

Prasad, S.N. Teaching peace: A challenge to teacher education. *J Indian Edn* 12(4), 1986, 32-7.

EDUCATIONAL RESEARCH

Dippelhofer-Stiem, Barbara. How to measure university environment ? : Methodological implications and some empirical findings. *Hr Edn* 15(5) 1986, 475-95.

Jones, Ann and Preece, Jenny. Relating research to curriculum and course development. *Computers and Edn* 10(1), 1986, 149-53.

EDUCATIONAL TECHNOLOGY

Blandford, A.E. and Smith, P.R. The evolution of computer based learning software design: Computer assisted teaching unit experience. *Computers and Edn.* 10(2), 1986, 251-7.

Foster, Badi G and Wertz, Lana H. Educational video: A ministeries approach. *New Directions Cont Edn* (30), 1986, 3-13.

Gillies, Donald J. CAL in Canada : Innovations and their sources in teaching and learning. *Computers and Edn* 10(1), 1986, 221-27.

Hativa, Nira. The microcomputer as a classroom audiovisual device: The concept and prospects for adoption. *Computers and Edn* 10(3), 1986, 359-67.

Jackson, Gregory A. Technology and pedagogy : Making the right match is vital. *Change* 18(3), 1986, 52-7.

James, Edward B. Computer-based teaching for undergraduates: Old problems and new possibilities. *Computers and Edn* 10(2), 1986, 267-72.

Seitz, Linda Ludington. Computerized systems: Centralized or decentralized? *New Directions Hr Edn* (50), 1985, 53-8.

Smith, Geoffrey W. CAL : Improved learning and improved teaching. *Computers and Edn* 10(1), 1986, 115-8.

Thomas, Gary. Education and technology in the third wave. *Oxford Rev Edn* 12(3), 1986, 223-31.

EVALUATION

Morris, John D. Selecting a predictor weighting method by press. *Ednl Psy Measurement* 46(4), 1986, 853-69.

Tyler, Ralph W. Changing concepts of educational evaluation. *Ednl Res* 10(1), 1986, 1-113.

ECONOMICS OF EDUCATION

Bucklew, Neil and Smith, Daniel J. The planning-budgeting process: Planning as the basis for resource decisions. *New Directions Hr Edn* (55), 1986, 83-9.

Connor, A.I. and others. Academic-industry liaison in the United Kingdom: Economic perspectives. *Hr Edn* 15(5), 1986, 407-20.

Fischer, Richard B. Pricing and fee management. *New Directions Cont Edn* (31), 1986, 73-81.

Ota, Cleaver Chakawuya. Community financing of schools in Zimbabwe. *Prospects* 16(3), 1986, 355-68.

Tomlinson, John. Public education, public good. *Oxford Rev Edn* 12(3), 1986, 211-22.

PROFESSIONAL EDUCATION

Anderson, Henry R. The professional school concept: Breaking new ground. *New Directions Hr Edn* (55), 1986, 99-107.

ADULT EDUCATION

Coggins, Chere. Wisconsin Conference Report: Effective teaching at a distance. *Open Learning* 1(1), 1986, 49-52.

Falk, Charles F. Promoting continuing education programs. *New Directions Cont Edn* (31), 1986, 49-71.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Safi, A. Qayum. Kuwait University and its evaluation program. *Hr Edn* 15(5), 1986, 421-47.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

BIOLOGICAL SCIENCES

Anthropology

1. Abrol, Rajni. *Micro-demographic study of different communities of Andaman Island.* Punjabi.

2. Inderjit Kaur. *Genetic variation among five endogamous groups of Punjab.* Punjabi.

3. Rajasekar, R. *Studies on the HLA system of different population groups in Madurai.* Madurai.

Biochemistry

1. Kusum Prabha. *Studies on a red blood cell membrane receptor using clerodendron lectin as a probe.* Punjabi.

2. Prabhakar, V. *Effect of hydroxyurea on thymidine kinase activity in developing and aging brain and regenerating liver of rat.* Hyderabad.

3. Waghmare, Hemlata A. *Beneficial influences of certain chemical agents on experimentally induced fatty liver.* Nagpur.

Botany

1. Amarender Reddy, Marpadga. *Organisation of the nitrogenase structural genes in Azotobacter vinelandii.* JNU.

2. Bhagya Lakshmi, R.V. *Ambient air quality and vegetation at certain localities of Hyderabad.* Osmania.

3. Bhat, Ghulam Nabi. *Pathological and epidemiological studies on the leaf spot and blight disease of pea, Pisum sativum L. caused by Alternaria alternata (Fr.) Keissler.* CSAT, Kanpur.

4. Chandrakantha, V. *Studies on seed-insect interactions.* Madurai.

5. Chhabra, Madan Lal. *Partitioning and translocation of assimilates oon oleiferous brassicas.* HAU.

6. Dubey, Rajesh Kishore. *Developmental anatomy of some common trees of leguminoseae.* Rajasthan.

7. Indrapal Singh. *Genetics of yield and its components in lentil, Lens culinaris Medic.* CSAT, Kanpur.

8. Jai Parkash. *Studies on nucleotide binding to CF_1 and its relation to photophosphorylation.* JNU.

9. Joshi, Kalpana. *Studies on the reproductive biology of Tylophora indica (Burm. F) Marr.* Sukhadia.

10. Joshi, Suresh Chandra. *Studies on the biochemistry of gall formation in Cinnamomum tamala Fr. Nees with special emphasis on auxin metabolism.* NEHU.

11. Khanvilkar, Shailaja Rajendra. *Physiological studies in sugarcane.* Shivaji.

12. Krishna Murty. L. *Studies on growth, development and source sink relationships of mustard, Brassica juncea L.* BHU.

13. Masoodi, Saifud-Din. *Pathological studies on common scab of potato caused by Streptomyces Spp.* CSAT, Kanpur.

14. Mathur, Rajendra Prasad. *Ecophysiological observations on Ocimum species.* Sukhadia.

15. Mehrotra, Sunita. *The effect of heavy metals and growth regulators on the growth and metabolism of Chlorella strains.* Osmania.

16. Mohammad Khalid. *Genetic relationship between reactions to yellow mosaic and Carcospora leaf spot diseases and their association with other traits in mung bean, Vigna radiata (L) Wilczek.* Rajendra Agrl.

17. Ojha, Meera. *Carbon and nitrogen regulation of growth, heterocyst and spore differentiation in the endosymbiotic cyanobacterium, Anabaena cycadeae.* BHU.

18. Paliwal, P.P. *An ecological study of Fateh Sagar Lake, Udaipur with macrophytic vegetation.* Sukhadia.

19. Pandey, Alka. *Studies on kerotinophilic mycoflora from Jabalpur soils.* Durgawati.

20. Pandey, Ruchira. *Sodium chloride tolerant variant line of Cicer Arietinum L. selection in vitro and characterization.* Delhi.

21. Pasricha, Rama. *Coprophilous fungi: Succession and its ole in decomposition.* Delhi.

22. Rajput, Suresh Chandra. *Genetic parameters of breeding value in relation to quality and production traits in macaroni wheat, Triticum durum Desf.* CSAT, Kanpur.

23. Rastagari, N. Hassan Zadeh. *Studies on some soil and phytopathogenic bacteria.* Patel.

24. Saideswara Rao. Yarlagadda. *A contribution to the genetics of some morphological and biochemical characters in pearl millet, Pennisetum americanum (L) Leeke.* Andhra.

25. Sarnaik, Digambar Anantrao. *Biometrical studies on yield and its attributes in diverse genotypes of peas, Pisum sativum L.* Durgawati.

26. Sharma, N.C. *Studies on flora of Banswara District of Rajasthan.* Sukhadia.

27. Sundaram, T.N. *Studies on Azotobacter population in paddy soils.* Utkal.

28. Surinder Jit. *Production of primary and secondary products from in vivc and in vitro cultures of some arid zone plants.* Rajasthan.

29. Tarenia, Bijaya Laxmi. *Studies on above ground plant surface saprophytes of rice and their interactions with fungal pathogens.* Utkal.

30. Tejbir Singh. *Variations in Leghaemoglobins and plant growth in some legume crops.* Meerut.

31. Tripathi, Rakesh Kumar. *Studies on leaf spot of til, Sesamum indicum L caused by Myrothecium roridum Tode Ex. Fr.* CSAT, Kanpur.

32. Upreti, G.C. *Studies on potato diseases on Kumaun hills with special references to viral diseases.* Kumaun.

33. Vyas, Tara. *Ecophysiological and morphogenetic studies on Plagiochasma appondiculatum (Lobm). et Lindb.* Sukhadia.

34. Warade, Sudhakar Damodar. *Studies on heterosis and combining ability in brinjal, Solanum melongena Linn.* MP Krishi.

35. Yusuf, Mohammad. *Observations on the vegetation around Bajaj Cement Factory, Nahar Maghra, Udaipur.* Sukhadia.

Zoology

1. Aipatwar, A.R. *Histophysiological studies on the pituitary gland of less bandicost, Bandicata bengalensis Grug.* Bhopal.

2. Badwaik, Nilima K. *Studies on the pituitary of two species of bats.* Nagpur.

3. Bandyopadhyay, Asok Kumar. *Morphological, histological, histochemical and autoradiographic studies of internal reproductive system of Hoplasoma Unicolor (Coleoptera: Chrysomelidae).* Burdwan.

4. Bandyopadhyay, Ujjal Kumar. *Studies on the effects of some neurotoxic substances on the biochemistry of central nervous system in Schizoda Ctylus monstrosus Drury with special emphasis on cholinesterase.* Burdwan.

5. Bangia, Krishan Kumar. *The effect of certain drugs on puffing activity of the salivary gland polytene chromosomes of Drosophila melanogaster.* Rajasthan.

6. Bhaskar, Bollapragada Ram. *Haematology of Chanos chanos Forskal from brackish water fish farms of Kakinada.* Andhra.

7. Chopra, Neeru. *A study of the seasonal history of Bruchus pisorum Linnaeus and Bruchus lentis Forelich, and the pest status of other field bruchids.* Panjab.

8. Hebalkar, Dilip Shripad. *Physiological and behavioural effects of selected insecticides and pheromones on the bug, Dysdercus koenigii F. (Hemiptera: Pyrrachocordiae)* Shivaji.

9. Hora, Chattar. *Some aspects of host parasite relationship between Bubalus, bubalis (Buffalo) and its amphistomes, Ceylonocatyle scollocoelium and Paramphistomum cervi.* Sukhadia.

10. Jain, Rajendra Kumar. *Studies on oxygen consumption in the fish brain and its correlation with cholesterol and electrolyte concentration under the influence of amino acids.* HS Gour.

11. Jain, Usha. *Investigations on the effect of brodifacoum on the house rat, Rattus rattus ruffescens : A toxicological, histopathological and biochemical approach.* Rajasthan.

12. Jha, Mahendra Kumar. *The role of thyroid in the differentiation of germ cells in neonatal mouse, Mus musculus.* Rajasthan.

13. Maitra, Uday K. *Immune responses of activated lymphocytes to chemically induced tumour cells.* NBU.

14. Mazumdar, Vibhas. *Morphometric chemo and cyto-taxonomic studies on some edible oysters.* Sukhadia.

15. Menon, P.K. Balasubramanian. *Studies on population dynamics of mosquito vectors.* Meerut.

16. Nayak, Prafulla Kumar. *Endocrine control of reproduction with special reference to circannual changes in sex steroids, T_3T_4 in normal and pinealactomized Catfish, Clarias batrachus.* BHU.

17. Pacholi, Ruchira. *Studies on oxygen consumption of the rat liver and its correlation with cholesterol and electrolyte concentration under the influence of amino acids.* HS Gour.

18. Paul, Bholanath. *Role of lymphocyte activation in the analysis of belated immune response in a bat, Pteropus giganteus.* NBU.

19. Rai, Umesh. *Studies on the adrenal glands testes and epididymis in some reptiles.* BHU.

20. Ramesh Chand. *Isolated and combined toxicity of a fresh water fish, Notopterus notopterus Pallas.* Meerut.

21. Randhawa, Gurinder Kaur. *Histochemical and biochemical studies in follicles and corpora lutea of the rat ovary.* PAU.

22. Rao, P.S. *A study of primary productivity plankton and some physico-chemical features of the lake Jaisamand in relation to fisheries.* Sukhadia.

23. Sandhu, Jagtar Singh. *Antifertility studies of certain drugs of abuse in male albino rates: A histophysiological and biochemical approach with special reference to general metabolism.* Rajasthan.

24. Sharma, Om Prakash. *Studies on the role of selected organic and inorganic fertilizers in pisciculture.* Sukhadia.

25. Sharma, Suman. *Modification of radiocalcium* (45Ca) *induced histopathological changes in mice by 2-mercaptopropionylglycine (MPG).* HP.

26. Sudhakara Rao, Gaddipaty. *Studies on the biology and fishery of the brown prawn, Metapenaeus monoceros (Fabricius,* 1798) *along the Kakinada Coast.* Andhra.

27. Tankar, Sahadeo Sampatrao. *Effects of some pollutants on edible crab, Baratelphusa jacquemontii Rathbun.* Amravati.

28. Trigun, Surendra Kumar. *Age-related biochemical changes in mammals: Purification, kinetics and in vitro regulatory properties of phosphofructokinase and fructose-1, 6-bisphosphatase of female rats.* BHU.

29. Veerasalingam, Mamidi. *Studies on respiration starvation and seasonal changes in some body biochemical constituents on intertidal bivalve Barbatia obliquata (Gray).* Andhra.

Medical Sciences

1. Amareshwar Singh, T.K. *Studies on lipidaemias with special reference to ischaemic heart disease.* Osmania.

2. Chaturvedi, Suraj Bhan. *A study of the blood levels of glycosylated haemoglobin, sugar pyruvic acid and plasma levels of amino acid, magnesium and cholesterol in non-diabetic and diabetes mellitus subjects.* Rajasthan.

3. Satyanath, Bhadriraju. *Studies on micro coacervate drug sorbates of gelatin with and without core adsorbents as oral sustained release drug delivery system.* Andhra.

4. Usha Prabha. *Aetiopathogenesis of goitre in and around Meerut.* Meerut.

Agriculture

1. Balyan, Surendra Singh. *Studies on spacing and soil fertility requirements in Ocimum gratissimum Linn Var. closimum.* Meerut.

2. Bhattacharya, Jyoti Shanker. *Effect of herbicides on the quality constituents of rai, Brassica juncea (L) Czern and Coss and Toria, B. campestris L. Var toria.* CSAT, Kanpur.

3. Dalel Singh. *Relationship of Cadmium with zinc, phosphorus and sulphur in some crops.* HAU.

4. Dhoom Singh. *Studies on the intercropping of mustard with gram.* CSAT, Kanpur.

5. Dutta, Prafulla. *Studies on antifeedant properties of some indigenous plant products of north-eastern region of India against insect..* Dibrugarh.

6. Gautam, Dhani Ram. *Studies on the seasonal variations in the rooting of juvenile and adult cuttings of walnut, pecan and olive with the aid of IBA under mist.* Yashwant Singh.

7. Gogoi, Ajoy Kumar. *Nitrogen economy and weed control in rice-wheat crop rotation.* Rajendra Agrl.

8. Kalra, Alok. *Interaction between some viruses and fungi effecting potato crop in Haryana : An experimental study.* HAU.

9. Mahendra Prasad. *Genetic analysis of yield and its components in bottle gourd, Laginaria siceraria Standl.* CSAT, Kanpur.

10. Mohammad Waseem. *Evaluation of antiviral activity of certain indigenous plant extracts.* CSAT, Kanpur.

11. Om Prakash. *Response of greengram and blackgram varieties to seeding and phosphorus fertilization.* Meerut.

12. Rajasekharan Pillai, A.G. *Pathology of anaphylaxis in the chicken.* JN Krishi.

13. Roy, Shishir Kumar. *Effect of growth regulators on staggering of queen variety of pineapple, Ananas comosus (L) Merr.* CSAT, Kanpur.

14. Siddharth Kumar. *Biological oxidation of iron pyrites and its utilization for upgrading the efficiency of pyrites as an agent in reclaiming sodic soils.* CSAT, Kanpur.

15. Singh, Raj Bahadur. *Constraints to production of rapeseeds and mustards in UP.* CSAT, Kanpur.

16. Singh, Shive Raj. *On optimum size and economy of a multifunctional farm implement.* BHU.

17. Singh, Shyam Kumar. *Impact of artificial insemination on the economy of the farmers of district Mathura (UP).* CSAT, Kanpur.

18. Sinha, Anirudh Kumar. *Soil strength affecting seedling emergence of crops.* IIT, Kharagpur.

19. Sinha, Sachidanand. *Studies on freezability, certain characteristics and fertility of buck spermatozoa.* Birsa Agrl.

20. Thakur, Dila Ram. *Studies on fertility and weed management in rain-fed maize, Zea mays Linn. under the mid-hill conditions of North-Western Himalayas.* HP Krishi.

21. Thakur, Matendra Singh. *Studies on hormonal profiles in normal and induced parturition in goats.* HAU.

22. Tiwari, Vishwambhar, Nath. *Studies on composting of organic wastes through cellulolytic fungal cultures.* CSAT, Kanpur.

23. Yadvender Kumar. *Genetic analysis for combining ability and adaptability in potato, Solanum tuberosum L.* HP Krishi.

Veterinary Science

1. Chakravorty, Atish Kumar. *Optimising breeding goals through multi-trait and multi-stage selection for genetic advancement in buffaloes.* HAU.

2. Sharma, Lila Dhar. *Genetic studies on serum proteins and their relationship with certain diseases of cattle and buffaloes.* HAU.

GOVT. OF INDIA, MINISTRY OF DEFENCE
(Defence Research & Development Organisation)

Advt. No. 009/RAC/87

Defence Research and Development Organisation (DRDO) wishes to appoint Scientists in different grades for its various labs located all over India. Persons with aptitude for excellence in research and development can look forward to an enriching and satisfying work experience as members of Defence Research and Development Service.

Pay scales of the posts are as under:-

Sc. 'G'	:	Rs. 2500-3000/-
Sc. 'F'	:	Rs. 2000-2500/-
Sc. 'E'	;	Rs. 1800-2250/-
Sc. 'D'	:	Rs. 1500-2000/-
Sc. 'C'	:	Rs. 1100-1600/-
Sc. 'B'	:	Rs. 700-1300/-

(Pay scales are likely to be revised on the recommendations of Fourth Pay Commission).

Applications are invited for the following posts:

SCIENTISTS 'G'— 3 posts.

Item No. 1 Electronics and Radar Development Establishment (LRDE), Bangalore — 1 Post

The Director, LRDE is required to provide high calibre scientific leadership for development of radar system and communication network activities undertaken by the Laboratory for the three Services. These activities cover the entire spectrum of electronics ranging from millimetre waves to audio range, antennas, 'rf' and 'if' signal amplification, waveform generation, signal and data processing, displays etc. The Director is thus required to integrate the scientific and technology efforts for a spectrum of disciplines by his proven abilities in one or more areas of R & D activities listed above and to inspire team efforts through breadth of knowledge related to application of radar or communication systems. The Director should also possess the ability to interact creatively with other R&D institutions and production agencies as LRDE is the leading laboratory in several major national programmes relating to surveillance, communications and weapon systems.

Essential Qualifications : (a) Atleast Second Class Bachelor's Degree in Electronics/Communications/Telecommunication/Electrical Communication Engineering from a recognised University or equivalent, (b) Twelve years' research, design and development experience in the areas of radar systems or communication networks of which 5 years should have been in a senior responsible position in handling major R&D projects in any of the above two systems areas.

Desirable Qualifications : Master's Degree in Electronics/Communication/Telecommunication/Electrical Communication Engineering or Ph.D./Published work in the above mentioned areas.

Item No. 2. : Defence Food Research Laboratory (DFRL), Mysore —1 Post.

The Director DFRL is required to provide high calibre scientific leadership to the laboratory engaged primarily in research and development activities concerning development of packed dry food for the three Services, aerospace programmes and related Bio-chemical and Nutritional activities. The Director is thus required to integrate the scientific and technological efforts for the above activities by his proven abilities and to inspire team efforts through his depth and breadth of knowledge related to development of packed foods for the three Services and aerospace programmes. The Director should also possess the ability to interact creatively with other academic and R&D institutions and user agencies in the country.

Essential Qualifications : (a) Second Class Master's Degree in Chemistry or Bio-Chemistry or Nutrition or Food Technology from a recognised University or equivalent, (b) Twelve years' reasearch, development and production experience in food technology out of which at least five years should be in a senior responsible position with capability to handle major R&D mission-oriented Projects.

Desirable Qualifications : (a) Ph.D. in Chemistry or Bio-Chemistry or Nutrition. (b) Production experience in the field of Food Technology.

Item No. 3 : Defence Science Centre (DSC) Delhi — 1 Post.

Director, Defence Science Centre is required to provide high calibre scientific leadership to Defence Science Centre primarily in the research, design and development activities related to laser systems for defence applications. The R&D activities in Laser Defence Systems span several disciplines such as lasers, laser engineering, electronics, control systems, diagnostic instrumentation and fluid dynamics. The Director is thus required to integrate the scientific and technological aspects over a spectrum of these disciplines by his proven experience and abilities in areas of R&D activities listed above and to inspire the team efforts through his breadth of knowledge related to application of technology for defence. The Director should prossess the ability to interact creatively with other R&D establishments/academic institutions.

Essential Qualifications : (a) Atleast Second Class Master's degree in Physics or Second Class Bachelor's degree in Electronics Engg. from a recognised university or equivalent. (b) Twelve years' research, design and development experience in the above mentioned areas of which 5 years should have been in a responsible position of leading group activities in application oriented R&D programmes.

Desirable Qualifications : Ph.D. in Physics or Master's degree in Electronics Engineering.

SCIENTISTS 'F' — 5 POSTS.

Item No. 4 : Armament Research and Development Establishment (ARDE), Pune — 1 Post.

The Scientist is required to head the VT Fuze Division and to provide high calibre scientific leadership in the design, development and pre-production of VT Fuzes required for different armament systems. The R&D activities would span several branches of Electronics Engineering including Digital/Analog circuits, Micro-processor and Micro-wave/Opto-electronic technology as applicable to armament systems.

Essential Qualifications : (a) Atleast second class Bachelor's degree in Electronics Engineering from a recognised university or equivalent. (b) Ten years' research, design and development experience in the area of development of variable time fuzes and digital/analog circuits with adequate knowledge of Micro-processors out of which 3 years should be in a responsible position dealing with planning and execution of large R&D projects.

Desirable Qualifications : (a) Master's degree in Electronics Engineering. (b) Knowledge of Armament systems and application of Opto-electronics and Microwave technology for use in armament field.

Item No. 5 : Defence Electronics Applications Laboratory (DEAL), Dehradun — 1 Post.

The Scientist is required to provide high calibre scientific leadership in the area of development of Mirowave and Millimetric wave sub-systems and components. The individual must have proven ability and should be capable of providing overall guidance to manage design, development, testing, technology transfer etc. of MM-wave sub-systems and components such as oscillators, preamplifiers, filters, mixers etc. and realisation of related interfaces and systems. He should be able to inspire team efforts through his depth/breadth of knowledge related to MM-waves sub-systems and components and possess the capability to interact creatively with R&D institutions in the country.

Essential Qualifications : (a) Second Class Bachelor's degree in Electronics Engineering or Master's degree in Physics with specialisation in Electronics and/or Microwave from a recognised university or equivalent. (b) Ten years' research, design, fabrication, testing and development experience in the area of Microwave-MM Wave sub-systems and components of which about 3 years should be in a senior responsible position dealing with application oriented research and develoment programme.

Desirable Qualifications : Master's degree in Electronics/Microwave Engineering or Ph.D./published work in the areas of MM-waves or Microwaves.

Item No. 6: Defence Research and Development Laboratory (DRDL), Hyderabad — 1 Post

The Scientist is required to provide high calibre scientific leadership in the area of Electrical/Electronic Integration and Automatic Check-out System of Rockets and Missiles. The individual must have proven ability in these areas and should be able to inspire team efforts through his depth/breadth of knowledge related to management of a large aerospace systems integration check out. He should also possess the ability to interact creatively with other Laboratories in the DRDO and academic/R&D institutions in the country.

Essential Qualifications : (a) Second class Bachelor's degree in Computer Science/Electronics Engineering. (b) Ten years' research, design and development experience in Electrical/Electronics integration and automatic check out system of Rockets/Missiles, out of which at least 3 years should be in management of a large aerospace system integration check out.

Desirable Qualifications : Master's degree in Computer Science/Electronics Engineering.

Item No. 7 : Aeronautical Development Establishment (ADE), Bangalore — 1 Post.

The Scientist is required to provide high calibre scientific leadership in the area of composits and fracture/experimental mechanics for airborne vehicles. The individual must have proven ability in these areas and should be able to inspire team efforts through his depth/breadth of knowledge related to composite structures. He should also possess the ability to interact creatively with other Labs in the DRDO and academic/R&D institutions in the country.

Essential Qualifications : (a) At least second class Bachelor's degree in Mechanical/Chemical/Aeronautical Engineering from a recognised university or equivalent. (b) Ten year's research, design or development experience in the investigation of problems related to development of composite structures, fracture and experimental mechanics for aeronautical applications out of which 3 years should be in a responsible position dealing with planning and execution of large R&D projects.

Desirable Qualifications : Master's/Ph.D. degree in Mechanical/Chemical/Aero Engineering with specialisation in structures.

Item No. 8 : Explosives Research and Development Laboratory (ERDL), Pune — 1 Post.

The Scientist is required to provide high calibre scientific leadership to this laboratory engaged in research, design and development activities connected with high explosives, propellant, pyrotechnics etc. The Scientist should have proven ability in one or more of these areas and should be able to inspire team effort through his depth/breadth of knowledge related to above areas and their application to defence. He should also possess the ability to interact creatively with various academic/R&D institutions in the country.

Essential Qualifications : (a) At least second class Master's degree in Chemistry from a recognised university or equivalent. (b) Ten years' research and development experience in the areas of explosives and propellants as evidenced by original research publications or in applied research.

Desirable Qualifications: Ph.D. in Chemistry or in any field of explosives.

SCIENTISTS 'D' — 2 POSTS

Item No. 9 : Botany/Microbiology — 1 Post

Essential Qualifications ((a) At least second class Master's degree in Microbiology/Botany from a recognised University or equivalent. (b) Eight years' research and development experience in Microbiological evaluation of Food Products and laying-down of standards.

Desirable Qualifications : Ph.D. in Microbiology/Botany.

Item No. 10 Electronics and Communication Engg. — 1 Post

Essential Qualifications : (a) At least second class Bachelor's degree in Electronics and Communication Engg. from a recognised University or equivalent. (b) Eight years' research, design and development experience in the field of communications systems and development of computer algorithms for guided signal processing out of which 3 years should have been in teaching in the area of guidance for airborne vehicles at post graduate level.

Desirable Qualifications : Master's degree in Electronics and Communication Engineering.

SCIENTISTS 'C' — 7 POSTS

Item No. 11 Mechanical Engineering — 1 Post

Essential Qualifications : (a) At least second class Bachelor's degree in Mechanical/Aeronautical Engineering or master's degree in Physics from a recognised university or equivalent. (b) Four years' research and development experience in the area of Nondestructive testing utilising X-Ray radiography and ultrasonic techniques.

Desirable Qualifications : (a) Master's degree in Mechanical/Aeronautical Engg or Ph.D. in Physics. (b) Experience in NDT of composite materials using X-Ray Radiography or Ultrasonic Techniques.

Item No. 12 : Statistics — 1 Post

Essential Qualifications : (a) At least second class Master's degree in Maths/Statistics from a recognised university or equivalent. (b) Four years' research and development experience in the areas of Multivariate Analysis, discriminant Analysis pattern regonition or cluster analysis.

Desirable Qualifications : Ph.D. in Statistics.

Item No. 13 : Mathematics — 1 Post

Essential Qualifications : (a) At least second class master's degree in Mathematics/Statistics from a recognised university or equivalent. (b) Four years' research experience in information: theory/algebraic coding theory.

Desirable Qualification : Ph.D. in Math/Statistics.

Item No. 14 : Physics — 1 Post

Essential Qualifications : (a) At least second class Master's degree in Physics/Materials Science/Solid State Physics or equivalent from a recognised university or equivalent. (b) Four years' research, design or development experience in the field of advanced solid state materials.

Desirable Qualifications : Ph.D. in Phsycis or published work in the field of Magnetic Materials/Hydrogen storage materials.

Item No. 15 : Aeronautical Engineering — 1 Post

Essential Qualifications : (a) At least second class Bachelor's degree in Aeronautical Engineering from a recognised university or equivalent. (b) Four years' research, design and development experience in Flight Control, hydraulic and pneumatic systems.

Desirable Qualifications : (a) Master's degree in Aero Engg. and Computer programming.

Item No. 16 : Organic Chemistry — 1 Post

Essential Qualifications : (a) At least second class Master's degree in Organic Chemistry from a recognised university or equivalent. (b) Four year's research, design or development experience in the field of Synthetic Organic Chemistry.

Desirable Qualifications : (a) Ph.D. in Organic Chemistry. (b) Experience of handling/maintenance and interpretation of results from Modern Instruments of Analysis.

Item No. 17 : Metallurgical Engineering — 1 Post

Essential Qualifications : (a) At least second class Bachelor's degree in Metallurgical Engineering from a recognised university or equivalent. (b) Four years' research, development or production experience in the field of super-alloys.

Desirable Qualifications : Ph.D./Master's degree in Metallurgy.

SCIENTISTS 'B' — 9 POSTS

Item No. 18 : Chemistry — 3 Posts

Essential Qualifications : At least second class Master's degree in Chemistry with specialisation in Electro-Chemistry from a recognised university or equivalent.

Desirable Qualification : Ph.D. in Electrochemistry.

Item No. 19 : Chemistry — 2 Posts

Essential Qualifications : At least second class Master's degree in Chemistry with specialisation in Polymer Science or master's degree in Polymer Science from a recognised university or equivalent.

Desirable Qualification : Ph.D. in Polymer Science.

Item No. 20 : Civil Engineering — 3 Posts

Essential Qualifications : At least second class Bachelor's degree in Civil Engineering from a recognised university or equivalent.

Item No. 21 : Agriculture Science — 1 Post

Essential Qualifications : At least second class Master's degree in Agriculture Science with specialisation in horticulture from a recognised university or equivalent.

GENERAL CONDITIONS

1. **Age Limits** : (i) For Sc 'G' and 'F' upto 50 years (ii) For Sc 'D' upto 45 years (iii) For Sc. 'C' upto 35 years (iv) For Sc 'B' upto 28 years.

Relaxation of 5 years is admissible to candidates belonging to SC/ST communities. Relaxation of age limit upto 5 years is also admissible to Govt. servants as per rules. Crucial date for determining age is **7 March, 1987.**

2. **Method of Applying** : Neatly complete type-written applications should be sent to Director, Recruitment and Assessment Centre, Room No. 225, 'B' Wing, Sena Bhavan, New Delhi-110011, preferably by a registered cover, superscribed "Item No....... (DRDO) on plain paper in the prescribed format (reproduced below) accompanied by a crossed non-refundable postal order of the value of Rs. 8.00 drawn in favour of Senior Accounts Officer, Recruitment and Assessment Centre, DRDO, payable at New Delhi. There is no fee for SC/ST candidates. **Last date for receipt of application is 7 March, 1987.** In respect of candidates from

Andaman and Nicobar Islands, Lakshdweep and abroad, last date of receipt of applications is **21 March, 1987.**

3. **Method of Selection :** Selection for these posts would be done after holding interviews. If necessary, a written test may be conducted for selected posts. Persons called for interview for the posts of Sc 'G' and 'F' would be reimbursed actual train/bus fare by shortest route limited to first class rail fare from the normal place of residence to the place of interview. Persons called for interview for other posts would be reimbursed actual train/bus fare from the normal place of residence to the place of interview limited to second class rail fare.

4. Only Indian nationals need apply.

5. Candidates should send one self-addressed unstamped envelope of 23 x 10 cms along with the application.

6. One copy of recent passport size photograph should be pasted on right hand corner of the first page of the application.

7. Attested copies of certificates/testimonials should be attached to the application form. Self attested copies will be accepted. NO ORIGINALS SHOULD BE FORWARDED.

8. Candidates will have to produce original certificates at the time of interview.

9. Incomplete applications or those received late would be summarily rejected and no correspondence would be entertained in this regard.

10. Knowledge of German, French, Russian, Chinese or Japanese languages is a desirable qualification for all the posts.

11. Posts are transferable anywhere in India.

12. Candidates working in Govt/Public Sector/Autonomous Organisations should apply through proper channel.

13. Prescribed essential qualifications are the barest minimum and mere possession of the same does not entitle any candidate to be called for interview.

14. Candidates desirous of applying for more than one post may apply separately for posts indicating item number of the posts.

15. Handwritten applications will not be entertained.

CANVASSING IN ANY FORM WILL MEAN DISQUALIFICATION

FORMAT APPLICATION

Application for the Post of Scientist*
*(To be indicated)

Affix Passport
size
latest photograph

1. Advertisement No. 009/RAC/87
2. Item No.
3. Details of Postal Order(s)
   No., Date and Amount
4. Name in full (Shri/Smt/Km.)
   (in block letters)
5. (a) Date of birth
   (in Christian Era in figures)
   (b) Age as on **07 March 1987**
6. Nationality :
7. Marital Status :
8. Father's/husband's name:
9. Address for correspondence
10. Permanent Address:
    (in block letters with pin code)
11. Nearest Railway Station :
12. Whether belong to SC/ST
    (If yes, attach certificate)
13. Educational Qualifications :

Sr. No.	*Course Passed	University/ Institution/ Board	Year of Passing	Subjects taken	Result with Division/ Class

*In chronological order from X Standard (SSLC/HS/HSC) onward.

14. Professional Training :

	Period		
Organisation	From	To	Details of Training

15. Employment record :

Name & address of the employer/	Period of service from to	Designation of the post held	Scale of pay of each post	Detailed description of work	Reason for leaving

16. Present basic pay :
    Other allowances:
    Total emoluments :
    Next increment due on:
    Salary expected :
17. Minimum joining time required:
18. Resume of research work/experience, if any:
19. Field of special interest.
20. Are you under any contractual obligations to serve Central/ State. Govt/Any other public sector undertaking or Autonomous body and if so the details.
21. Details of relatives already employed in DRDO:

Name of Relatives	Relationship	Lab/Estt. in which employed	Post Held

22. Have you applied for any post in DRDO during the past two years? If Yes, give particulars:

Sr. No.	No. and Date of Advt.	Name of Post/ Discipline	Date of Interview	Remarks

23. Any other information you may wish to add (Use separate sheet if necessary).
24. Declaration.
    I declare that the foregoing information is correct and complete to the best of my knowledge and belief and nothing has been concealed/distorted. If at any time, I am found to have concealed/distorted any material information, my appointment shall be liable to summary termination without notice/compensation. I will, if and when required, take up duty in the discharge of government assignments anywhere in India.

Place :
Date :

Signature of Candidate

davp 86/507

CLASSIFIED ADVERTISEMENTS

CENTRAL DRUG RESEARCH INSTITUTE

(Council of Scientific & Industrial Research)

Advertisement No. 1/87

Applications are invited for the following posts in Central Drug Research Institute, Lucknow :

1. **Scientist 'E-I'** : 1 Post.

(Rs. 1500-60-1800-100-2000) (Pre-revised).

1st Class M.Sc./M.V.Sc. Bacteriology/Microbiology with 12 years experience or Ph.D. Bacteriology/Microbiology with 10 years of Post Doctoral Research experience in mycobacterial diseases as evidenced by published work.

Desirable : (a) Knowledge of immunology in leprosy. Immunodiagnostics and vaccine development for mycobacterial diseases. (b) Capability of leadership to guide research in the field of mycobacterial infections. (c) Chemotherapeutic evaluation of antileprosy and anti-tuberculosis drugs. (d) Immunomodulation and immunopotentiation of vaccins/antigens etc.

Job Requirements: To conduct and guide research on screening methods for development of new antileprosy and antitubercular drugs and initiate studies for development of a diagnostic tests and vaccine for leprosy.

2. **Scientist 'C'** : 2 Posts.

(Rs. 1100-50-1600) (Pre-revised).

Post No. (i)

1st Class M.Sc. in Organic Chemistry with six years research experience or Ph.D. in Chemistry with 2 years of postdoctoral experience in the field of peptide chemistry. Candidates having experience in the design and synthesis of biologically active peptides and knowledge of their structure-function relationships would be preferred.

Job Requirement : To design peptides of biological importance and undertake studies on their synthesis and confirmation.

Post No. (ii)

1st Class M.Sc. (Org. Chemistry) with 6 years experience or Ph.D. (Org. Chem.) with 2 years research experience in synthetic/natural products Chemistry, preferably in the area of nucleosides and carbohydrate chemistry.

Job Requirement : To design nucleosides to modulate biological activity and/to use Carbohydrates as synthone.

3. **Scientist 'B'** : 7 Posts (2 posts reserved for SC and 1 for ST candidates).

(Rs. 700-40-900-EB-40-1100-50-1300). (Pre-revised).

Post No. (i) (Unreserved).

1st class M.Sc. (Pharmacology, Biochemistry) / M.B.B.S., M.V.Sc. or M. Pharm with Pharmacology.

Job Requirement : To undertake biochemicals studies connected with inflamations/immunology and anti-inflamatory drugs/immunomodulators.

Post No. (ii) and (iii) (One post reserved for SC candidate).

1st class M.Sc. or M.B.B.S./M.V. Sc./Ph.D. (Science).

Desirable : Research experience in a Toxicology Laboratory for 3 years minimum will be desirable.

Job Requirement : Candidates should be capable of handling material for inhalation, toxicity, neurotoxicity, reproductive toxicity, teratology and carcinogenic studies, knowledge of mutagenic studies will be preferred.

Post No. (iv) (Reserved for S.T. candidate).

1st class M.Sc. (Biochem.)/Ph.D. in Biochemistry Sciences with good academic record.

Desirable : 5 years research experience in the field of parasite biochemistry/immunology.

Job Requirement : To participate in research on biochemical/immunological aspects of parasitic diseases aimed at designing new drugs immuno-diagnostics and immunoprophylactics.

Post No. (v) (Unreserved)

1st class M.Sc. (Chemistry/Biochemistry).

Desirable : Minimum 2-3 years research experience in Membrane Biology preferably on application of Biophysical methods to study the membrane structure

Job Requirement : To study lipid-lipid, lipid-protein and protein-protein interactions in model as well as biological membrane using biophysical techniques such as NMR and flourescence.

Post No. (vi) (Reserved for SC candidate).

1st class Post Graduate (preferably Ph.D.) in Organic Chemistry/Pharmacy, with experience in Research and Development of synthetic drugs and their intermediates.

Desirable : 5 years experience as above and experience in the production of fine or heavy organic chemicals.

Job Requirement : To undertake research and development programme in the field of drugs and drug intermediates and to carry out up-scale studies on the institutes candidate drugs.

Post No. (vii) (Unreserved)

1st class Master's degree in Natural Sciences/Statistics/Mathematics / Operational Research. Experience in planning, monitoring and evaluation of R & D projects in a biomedical research institute is desirable.

Job Requirement : Implementation of modern methods of R & D management, and coordination of R&D projects and preparation of plan documents; monitoring and evaluation of technical and financial performance of projects.

4. **Senior Technical Assistant** : 2 Posts.

(Rs. 1640-60-2600-EB-75-2900). Post No. (i) (Reserved for ST candidate). B.Sc. (Biology group) with at least 3 years experience of work in a Pharmacology Laboratory or M.Sc. (Zoology or Biochemistry) with experience of work in a Pharmacology laboratory.

Desirable : Familiarity with the use of modern equipment and techniques used in pharmacological research.

Job Requirement : To assist the Sr. Scientists in Pharmacological Research.

Post No. (ii) (Unreserved)

B.Sc. or Degree in Commercial Arts, 5 years diploma course in colour and black and white photography, three years course in medical science photography from a recognised Institute or University.

Desirable : Minimum 3-5 years experience after graduation.

Job Requirement : Drawing, Scientific diagram, colour charts etc. Photomicrography, microphotography, out-door and indoor photography, colour and black and white.

5. **Senior Translator** : 1 Post (unreserved) (Rs. 1640-60-2600-EB-75-2900).

Qualification : Master's degree of a recognised University in Hindi/English, with English/Hindi as a main subject at degree level.

OR

Master's degree of a recognised University in any subject with Hindi and English as main subjects at degree level.

OR

Master's degree of a recognised University in any subject with Hindi/English medium and English/Hindi as a main subject at degree level.

OR

Master's degree in Hindi/English or in any other subject with Hindi/English medium, with English/Hindi as a main subject or as medium of examination at degree level.

OR

Bachelor's degree with Hindi and English as main subjects or either of the two as medium of examination and the other as a main subject plus recognised Diploma/certificate course in translation from Hindi to English and vice versa or two year's experience of translation work from Hindi to English vice versa in Central/State Government Offices, including Government of India Undertaking.

Job Requirement : The incumbent will be required to translate official correspondence/scientific literature from English to Hindi and vice versa. He/She may also be required to do original office work in Hindi.

Age limit : 28 years as on 1-1-87 (relaxable for SC/ST/Ex-servicemen as admissible under Govt. of India Rules). Age will be 35 years for Govt. employees.

The merit of the candidates will be judged on the basis of written competitive test in Hindi and English. The above post carries usual allowances admissible under Central Govt. Rules.

6. **Junior Technical Assistant :** 4 Posts (Rs. 1400-40-1800-EB-50-2300).

Post No. (i) (Reserved for Physically handicapped person).

B.Sc. with biology and chemistry as major subjects.

Job Requirement : Candidate should be capable of assisting the Senior Scientists in conducting toxicity and carcinogenecity testing using histochemical techniques.

Post No. (ii) (Reserved for ST candidate).

B.Sc. with Physics, Chemistry and Mathematics. Knowledge of electronic/electrical equipment required for process control and knowledge of microprocessor, computer etc. will be additional advantage.

Job Requirement : Will held in looking after instruments used in fermentation laboratory. May have to work on shift duty.

Post No. (iii) (Unreserved)

B.Sc. with Chemistry, Botany, Zoology.

Desirable : Working knowledge in the field of applied microbiology, isolation and identification of micro-organism. Knowledge of isolation and characterization of plasmids and maintenance of plasmid containing strains.

Job Requirement : The selected candidate will be required to participate in microbiological work, involving applied microbiology strain maintenance, work on plasmids and any other similar jobs as may be required from time to time. The selected candidate may be required to work in shifts, if necessary.

Post No. (iv) (Reserved for ST candidate)

B.Sc. with Chemistry. Experience of working in a laboratory and experience of working in chemical process industry desirable.

Job Requirement : To help in the scale up studies drugs and drug intermediates. Must be prepared to work in shifts.

7. **Junior Engineer (Workcharged) :** 2 Posts.
(Rs. 1400-40-1800-EB-50-2300).

3 years Diploma in Civil Engineering/Architecture or equivalent.

Desirable : Two years experience.

Job Requirement : Preparation of estimates for Civil works, actual execution of civil works, preparation of bills and recording of M.B. in addition should be able to handle the day-to-day civil maintenance works.

General Conditions

1. All the above posts carry usual allowances as admissible under the rules of Govt. of India.
2. A lower standard of suitability in consistent with efficiency will be applied in respect of Scheduled Caste/Scheduled Tribe candidates for the reserved posts. Candidates belonging to these communities should invariably enclose an attested copy of the original caste certificate issued by a competent authority with their application failing which they will not be entitled to the concessions otherwise admissible to them. In the event of non-availability of SC/ST candidates for the post of Scientist 'B', the post will be filled up by general candidate by following the prescribed procedure. For post No. 3 (iv), Scientist 'B' and 4 (i), STA, Scheduled Castes may also be considered for appointment against reserved post for Scheduled Tribe candidates.
3. Since it is not possible to call all the eligible candidates for interview, the applicants will be shortlisted for the purpose and the decision of the Director will be final.
4. Applicants called for interview will be paid single second class rail fare to and fro the actual place of undertaking the journey or from the normal place of residence as mentioned in the application whichever is nearer to Lucknow Railway Station.
5. The prescribed application form may be obtained from the Administrative Officer, Central Drug Research Institute, Chattar Manzil Palace, Lucknow-226001 (U.P.) P.B. No. 173 by sending a requisition duly indicating the post and advertisement number alongwith a self-addressed stamped envelope of appropriate value (23 x 10 cms.) Any request for application form received after **8.3.87** will not be entertained for supply by post. Application duly completed (supported by attested copies of certificates and testimonials) alongwith a non-refundable fee of Rs. 8/- (no application fee is prescribed for SC/ST candidates) in the form of crossed Indian Postal Order drawn in favour of the Director, Central Drug Research Institute, Chattar Manzil Palace, Lucknow-226001 should reach Director, CDRI, Lucknow on or before **20-3-87**. Application received after this date will not be considered.
6. Separate application for each post alongwith requisite postal order in a separate envelope indicating the advertisement number and post applied for should be sent.
7. Candidates in Government/Semi-Govt. organisations, public undertakings and autonomous bodies should route their applications through proper channel.
8. Physically handicapped candidates applying for the post against category 6(i) are exempted from payment of application and examination fee provided they are otherwise eligible for appointment to the posts on the basis of the standards of medical fitness prescribed for that post (including any concessions specifically extended to the physically handicapped) and who enclose with the application form, a necessary certificate from a Govt. hospital/Medical Board in support of his/her claim for being handicapped.
9. Canvassing in any form and/or bringing in any influence political or otherwise, will be treated as a disqualification for the post.
10. Any of the particulars furnished by an applicant if found incorrect at any stage his/her candidature is liable to be rejected and/or if already appointed, his/her service is liable to be terminated.
11. Interim enquiries will not be entertained.

INDIAN SCHOOL OF MINES

DHANBAD - 826004

No. 420001/87-Estt.

February 5, 1987

The Indian School of Mines a deemed University under the UGC Act is the premier institution serving the highly specialised manpower needs in the mineral sector.

The Department of Mines, Ministry of Steel and Mines have sanctioned a Project for "Manpower Planning in Mineral Engineering" at the Indian School of Mines with a budget of Rs. 419 lakhs for the first five years and to be funded by UGC thereafter. The Project includes starting of programmes at the B. Tech and Advanced Diploma levels in Mineral Engineering with a faculty strength of 4 Professors, 6 Assistant Professors, 6 Lecturers and other supporting staff and infrastructure. These courses are first of their kind in the country.

Applications are invited for the following positions :

Department	Post	Specialisation/Background
(i) Fuel and Mineral Engineering	Professor — Two Lecturer — Two	Mineral Engineering/Coal Preparation. Mineral/Chemical/Metallurgical Engg./ or equivalent preferably with Mineral Background.
(ii) Engineering and Mining Machinery	Professor — One	Mineral Beneficiation Equipment (Design and Development).
	Lecturer — One	Mineral Beneficiation Equipment (Operation and Layout).

Note: If suitable candidates at the level of Professor are not available, the post may be offered at the level of Assistant Professor.

SUPPORTING TECHNICAL STAFF

(i) Fuel and Mineral Engineering	Senior Technician — Two	For one post Master's degree in Science/ Engg. with at least two years experience. for the other post equivalent qualification with two years experience in Mineral Equipment/Instrumentation.
	STA/SSA — One	Degree in Engg. **OR** Master Degree in Science **OR** an Advanced Diploma in Engg/ Instrumentation with a minimum of two years experience.
	TA/SA — One	Degree in Engg. **OR** Diploma in Engg. Instrumentation with two years experience **OR** a degree in Science with threo years experience in Mineral/Coal preparation.
(ii) Engineering and Mining Machinery	STA — One	Diploma in Mechanical Engg. with at least three years of experience in conducting laboratory experiments and assisting in drawing classes in an Institute of repute offering graduation courses.
	TA — One	Diploma in Mechanical Engg. with one year of experience in maintenance, upkeeping, operation and testing of Internal Combustion Engines.
(iii) Applied Sciences	STA/TA — One	M.Sc. in Physics with specialisation in Solid State Physics/Nuclear Physics/Electronics.

The School also invites applications for the following positions on its regular establishment:

(i) Engg. and Mining Machinery	Asst. Professor — One	Mining Machinery preferably opencast equipments.
	Lecturer — One	Drilling Equipment.
(ii) Central Workshop	Workshop Supdt. — One	Workshop (Captive Power Generation, Automobile, etc.)

PAY AND ALLOWANCES AND AGE LIMIT

Post	Upper Age Limit	Scale of Pay (Rs.)	*Salary (Rs.) at*	
			Min. of Pay Scale	*Max. of Pay Scale*
Professor	50 years	*1500-2500	3,170.00	5,205.00
Asstt. Prof./Workshop Supdt.	40 years	*1200-1900	2,010.00	3,823.00
Lecturer	35 years	* 700-1600	1,882.00	3,260.00
Sr. Technician	35 years	2000-3500	2,000.00	3,500.00
STA/SSA	30 years	1640-2900	1,640.00	2,900.00
TA/SA	25 years	1400-2300	1,400.00	2,300.00

*Pre-revised Scales

A higher start in the scale may be given in special and deserving cases. Upper age limit relaxable in respect of candidates otherwise considered suitable.

Detailed information and prescribed Application Form may be had free-of-charge from Registrar, Indian School of Mines, Dhanbad - 826004, by sending a self-addressed envelope (of size 30 cm x 12 cm) duly affixed with stamps worth **Rs. 5.90.**

Application in the prescribed form complete in all respects should reach the undersigned on or before **16th March, 1987.**

S. P. Varma
REGISTRAR

SNDT WOMEN'S UNIVERSITY

1, Nathibai Thackersey Road, Bombay-400 020

Advertisement No. 1

Dated : February 16, 1987

Applications are invited in the prescribed forms available at the University Office, on payment of Rs. 5/- (M.O./Indian Postal Order/in cash) for the following posts, to be filled in at the University Departments and its conducted Institutions at Bombay and Poona, so as to reach the undersigned on or **before fifteen days from** the date of its advertisement.

Sr. No.	Post	No. of Post	Post Under Reserved Category	Medium of Teaching
A.	**Dept. of Post-graduate Studies & Research, Bombay - 20**			
1.	Reader in History	ONE	—	ENG/GUJ/MAR
2.	Reader in Art and Painting	ONE	—	ENG/GUJ/MAR
3.	Reader in Psychology (Preferred in Clinical Psy.)	ONE	—	ENG/GUJ/MAR
4.	Reader in Music	ONE	—	ENG/GUJ/MAR
5.	Prof. in Clinical Psychology	OffiE	—	ENG/GUJ/MAR
B.	**L.T. College of Nursing, Bombay - 20**			
1.	Assistant Lecturer	ONE (TEMP) ONE (PERM)	—	ENG ENG
2.	Sister Tutor (C.A.S.)	ONE (TEMP)	—	ENG
*3.	Ward Sister	TWO	ONE	ENG
*4.	Staff Nurse	ONE	ONE	ENG
C.	**C.U. Shah College of Pharmacy, Bombay - 49**			
*1.	Store Keeper	ONE	ONE	—
D.	**Research Centre on Women's Studies, Bombay - 49**			
*1.	Jr. Technical Assistant	ONE	ONE	—
E.	**P.V. Polytechnic, Bombay - 49**			
*1.	Placement Officer	ONE	ONE	—
*2.	Lecturer in Interior Design	SIX	TWO	ENG

F.	**Dept. of Continuing & Adult Education, Bombay - 20**			
*1.	Assistant Director (Continuing Education)	ONE	ONE	—
2.	Assistant Director (PERC)	ONE	—	—
G.	**Post-Graduate Dept. of Psychology, SNDT College of Arts & Commerce, Poona**			
*1.	Lecturer in Psychology	ONE	ONE	ENG/MAR
H.	**P.V.D.T. College of Education Bombay - 20**			
1.	Lecturer in Education (Science/Maths)	ONE	—	MAR
I.	**Dept. of Language Teaching Centre of Education at PVDT College of Education, Bombay - 20**			
*1.	Lecturer in Language Teaching	ONE	ONE	ENG
2.	Reader in Language Teaching & Head of the Dept. of Language Teaching	ONE (TEMP)	—	ENG
J.	**Dept. of Post-graduate Studies and Research, PVDT College of Education, Bombay - 20**			
1.	Lecturer in Education	ONE	—	GUJ
K.	**S.V.T. College of Home Science, Bombay - 49**			
1.	Professor in Foods and Nutrition	ONE	—	ENG/GUJ/MAR
L.	**S.N.D.T. Arts and Commerce for Women, Poona. Dept. of Post-graduate Studies and Research, Poona.**			
*1.	Lecturer in Economics	ONE	ONE	ENG/MAR
M.	**Dept. of Education Management, SNDT Women's University, Bombay - 20**			
1.	Senior Stenographer-cum-Office Assistant	ONE	—	—
*2.	Technical Assistant (Please collect job specification with application form)	ONE	ONE	—
N.	**Dept. of Computer Science, Bombay - 49**			
1.	Lecturer in Computer Science	ONE	—	ENG
2.	Technical Assistant	ONE	—	—
	Computer Centre of the SNDT Women's University, Bombay - 49			
3.	Programmer	ONE	—	—
4.	System Engineer	ONE	—	—
O.	**S.N.D.T. Women's University Library, Bombay - 20**			
*1.	Technician	ONE	ONE	—
P.	**S.V.T. College of Home Science, Bombay - 49**			
1.	Senior Technical Asst. (for D.R.S.)	ONE (TEMP)	—	—
2.	Technician (for D.R.S. Programme) Dept. of F.R.M.	ONE (TEMP)	—	—
*3.	Laboratory Attendants (for D.R.S. Programme) Dept. of F.R.M.	ONE (TEMP)	ONE	—
*4.	Laboratory Attendants (for D.R.S. Programme) Dept. of F.N.	ONE (TEMP)	ONE	—

Minimum qualifications, salary scales, etc. of the post of teachers are as per approved U.G.C. scales and qualifications, Applications of Scheduled Castes/Tribes/Other Nomadic Tribes, will be considered as per Government directives.

*Indicates post under reserved category and will be filled by SC/ST/ONT candidates only if suitable candidates are found.

Dr. (Smt.) Usha Thakkar
REGISTRAR

SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING

(Deemed University)

VIDYAGIRI PRASANTHINILAYAM-515134 (A.P.)

The Institute invites applications for the following posts in the Faculty of Education:

Post	*Anantapur Campus (for women)*	*Whitefield Campus (for men)*	*Experience*
Professor	1	1	10 years of teaching-cum-research experience in Faculty/Institute/College of Education, administrative ability and commitment in building a substantial innovative programme.
Reader	1	1	5 years.
Lecturer	1	1	2 years.

AREAS OF SPECIALISATION

For Professor/Reader : Philosophical/Psychological Foundations, Sociological foundations, Awareness of Integrated Education. Methodology of Educational Research; Comparative Education/Teacher Education; Current Indian Educational problems policy, Planning and Management of Education; Educational Administration.

Subuect specialisation — any area of Sciences, Social Sciences.

For Lecturer : Besides an awareness of basic theories and practices of education, educational psychology, philosophy, teaching techniques, micro-teaching, they should be specialists in two minimum subjects in the areas indicated below:

(a) Languages — English.
(b) Social Sciences — History, Economics, Civics, Commerce, Geography etc.
(c) Sciences — Physics, Chemistry, Biology, Mathematics, Home Science.

QUALIFICATION FOR ALL THE POSTS ABOVE

Ph.D. in the subject concerned.

Interested candidates may write to the Registrar within 20 days of advertisement for prescribed application form.

The selected persons will be eligible for UGC Scales of Pay and be governed by the Contributory Provident Fund-cum-Gratuity Scheme of the Institute.

K. Chakravarthi
REGISTRAR

UNIVERSITY OF KALYANI

KALYANI, WEST BENGAL Pin-741235

Advt. No. 2/87 **Dated : 9-2-87**

Applications are invited for the post of Finance Officer on pay and allowances as admissible under the rules of this university.

Name of Post : **Finance Officer** — One post

Scale of Pay: Rs. 1500-60-1800-100-2000-125/2-2500.

Qualifications

(a) **Essential**

(i) Uniformly good academic record with a B+ Master's Degree or its equivalent professional qualifications.

(ii) Membership of the Institute of Chartered Accountants/Cost Accountants of India or experience in I.A.A.S. and equivalent service.

OR

A Master's Degree in Business Administration with specialisation in Finance.

In case of candidates holding professional qualifications as in item (ii) the requirement of M.A. Degree may be waived.

(iii) Preference will be given to Master's Degree in Commerce.

(iv) At least 15 years' experience in a Government or a university or in an Institute of High Learning in a high administrative post involving supervision, control, planning and audit.

(v) Age not less than 40 years. Relaxable in case of exceptionally qualified candidates.

The principle of reservation of posts for candidates belongs to scheduled castes and scheduled tribes shall be followed to the extent possible as per orders issued by the State Govt. from time to time.

Applications must be submitted in the prescribed form which may be obtained from the office of the undersigned from 16-2-87 personally or by sending self-addressed stamped (Rs. 1.80) envelope (25 c.m. x 12 c.m.) on payment of Rs. 7.50 (one-fourth for Scheduled Castes and Scheduled Tribes candidates) by crossed Indian postal order in favour of the University of Kalyani. Persons already in employment should apply through proper channel. Applications should be submitted in envelopes superscribed with the name of the post applied for along with attested copies of certificates, marks sheets in respect of all the examinations passed and reprints of publications/books and the same must reach the office of the undersigned on or before **9-3-87**.

The scheduled castes and tribes candidates must produce copies of caste certificates from the appropriate authority (S.D.O.) in their own area at the time of collecting forms.

Forms will be distributed between 11.30 a.m. and 3 p.m. on full working day (Saturday up to 1 p.m.). Candidates called up for interview will have to appear for the same at their own cost.

P. Sircar
REGISTRAR

UNIVERSITY OF KALYANI

Advertisement for Departmental Special Assistance Programme, Department of Botany, Kalyani, 741235, West Bengal. Dated 9-2-87

(a) Addendum (2nd) of Advt. No. 3/85 for the Post of Reader—(One Post)

In continuation of the previous advertisement No. 3/85 it is notified that persons having the following qualifications may also apply for the post of Reader under the Departmental Special Assistance Programme, Department of Botany of UGC : (a) Good academic record with first or second class (C in the 7 point scale) Master's degree in Botany following an Honours degree in the same subject. (b) A doctoral degree or research work of an equally high standard. (c) About five years experience in teaching and/or research in a recognised institution provided that at least three of these years were as lecturer in an equivalent position. (d) Specialisation in Plant Pathology with research experience in Molecular aspects in the same specialisation. Those who had applied for the post of Reader with specialisation in Molecular Genetics/ Molecular Taxonomy/Developmental physiology need not apply again. Scale of Pay: Rs. 1200-50-1300-60-1900/- plus admissible allowances. Age : preferably below 50 years.

(b) Advt. No. 1/87 (2nd) for the Post of Research Associate—(One Post).

Qualifications : M.Sc. degree in Botany (first or high second class; minimum 50% marks) following an Honours degree in the same subject followed by a Ph.D. degree with two years' research experience in Molecular Taxonomy/Molecular Genetics/ Molecular Pathology.

Pay : Rs. 1600/-

Age : Preferably below 40 years.

The principle of reservation of posts for the candidates belonging to Scheduled Castes and Scheduled Tribes shall be followed to the extent possible as per orders issued by the State Govt. from time to time.

Applications must be submitted in the prescribed form which may be obtained from the office of the undersigned from **16-2-87** personally or by sending self-addressed stamped (Rs. 1.80) envelope (25 cm. x 12 cm.) on payment of Rs. 7.50 (charge one-fourth for Scheduled Castes and Scheduled Tribes candidates) by Crossed Indian Postal Order in favour of the University of Kalyani. Persons already in employment should apply through proper channel. Applications should be submitted in the envelope superscribed with the name of the post applied for along with attested copies of certificates and marksheets in respect of all the examinations passed by the candidates and the same must reach the office of the undersigned on or before 9-3-87.

Forms will be distributed between 11-30 a.m. and 3 p.m. on any full working days (Saturday upto 1 p.m.) candidates called up for interview will have to appear for the same at their own cost.

The intention of the university is not only to fill the present post but also form a panel of suitable candidates for appointment against vacancies to occur in future within a year from the date of approval of panel by the Executive Council.

The Scheduled castes and scheduled tribes candidates must produce copies of caste certificates from the appropriate authority (S.D.O.) in their own area at the time of collecting forms.

P. Sircar
REGISTRAR

PUNJABI UNIVERSITY PATIALA

Advt. No. 83/Rect./PRO/86 Feb., 1987

Applications are invited for the following posts:

1. **Professors** : (One in the Department of Punjab Historical Studies and Two for the University Regional Centre, Bhatinda in the subjects of English and Economics).

(Grade: Rs.1500-60-1800-100-2000-125/2-2500 UGC).

Specializations

Pb. Historical Studies : Proficiency in Persian will be preferred.

English (R.C. Bhatinda) : Literary Criticism/Poetry.

Economics (R.C. Bhatinda) : Modern Economic Theory.

2. **Readers** : (Two in the Deptt. of Laws, one each in the Deptt. of History, Music, Physics and one for Regional Centre, Bhatinda in the subject of Punjabi).

(Grade : Rs. 1200-50-1300-60-1900) (UGC).

Specializations

History : Ancient/Medieval Indian History.

Punjabi : Modern Literature/Criticism.

Physics : Materials Science/Optics/ Radiation Physics.

3. **Lecturers** : (Four in the Deptt. of Physics, three in Zoology, two in Music and one each in Chemistry, History and one for Regional Centre, Bhatinda in the subject of Economics).

(Grade : Rs. 700-40-1100-50-1600).

Specializations

Physics

For 1st Post : The candidate should have First or High Second Class M.E./M. Tech. degree in Electronics.

Preference will be given to the candidate having post-graduate Teaching experience and experience in the field of Television.

For 2nd post : Solid State Physics (Theoretical).

For 3rd Post : Nuclear Physics (Theoretical).

For 4th Post: Electronics/Computer Science.

Zoology :

For 1st Post: Entomology.

For 2nd Post: Parasitology.

For 3rd Post : Cytogenetics and Animal Physiology.

Chemistry : Physical/Analytical.

History : Ancient/Medieval Indian History.

Economics : (R.C. Bhatinda) : Regional Economics/Economics of Industry.

Music :

For 1st Post : Music (Instrumental/Sitar)

For 2nd Post: Music (Vocal).

4. **Dean, College Development Council : One.**

(Grade : Rs. 1500-60-1800-100-2000-125/2-2500) (UGC).

Note:

(i) Those who had applied earlier for the post of Reader in Music, Lecturer in Music (Instrumental/Sitar) and Senior Technical Assistant (University Science Instrumentation Centre) need not apply again.

(ii) Details of QUALIFICATIONS etc. will be supplied alongwith application forms.

(iii) Number of posts may be increased or decreased.

(iv) The qualifications may be relaxed in case of poor response.

(v) The University reserves the right not to fill up any of the posts advertised.

APPLICATION FORMS can be had from the Head, Publication Bureau, Punjabi University, Patiala on payment of Rs. 5/- at the counter OR by sending IPO's of Rs. 5/- in favour of the Registrar alongwith self-addressed envelope of the size 25 x 10 cms. with 3.40 paise postage, superscribing on it "REQUEST FOR APPLICATION FORM FOR THE POST OF ——————.

In-service candidates should apply through proper channel with an advance copy to the University.

Application form, complete in all respects should reach the Registrar by **9-3-1987**.

REGISTRAR

HARYANA AGRICULTURAL UNIVERSITY

HISAR

Advertisement No. 1/87

Applications are invited for following posts on the prescribed form obtainable from Assistant Registrar (Faculty), HAU, Hisar by sending self-addressed unstamped envelope size 23 x 10 cms alongwith Indian Postal Order of Rs. 2/- in the name of Asstt. Registrar (General). Candidates already in service must apply through proper channel. Applications complete in all respects accompanied by a fee of Rs. 20/- posts at Sr. No. 1 to 12, Rs. 15/- for posts at Sr. No. 13 to 19 and Rs. 10/- for posts at Sr. No. 20 and 21 in the form of Indian Postal Order in the name of Asstt. Registrar (General) payable at HAU Post Office, Hisar should reach the Registrar by **18-3-1987 (2-4-1987** for candidates residing abroad). Incomplete applications and those received late will not be considered. Benefit of Contributory Provident Fund and leave etc. admissible as per University Rules. The applicants must possess prescribed qualifications and experience on the last date for receipt of applications. However, those who have submitted their thesis (Master's/Doctorate's level) by the last date of receipt of applications are also eligible to apply. The date of submission of thesis must be supported by a certificate duly signed by the concerned authority of the Institution. They will be considered by the Selection Committee only if they produce the completion certificate of Master's/Doctorate degree at the time of interview. The envelope containing application must be superscribed as "APPLICATION FOR THE POST OF ———————————".

1. **Dean, College of Home Science** (One): (i) Second class B.Sc. (Home Science or B.Sc. (ii) Second class M.Sc. in any branch of Home Science. (iii) Ph.D. in any branch of Home Science. (iv) Ten years' experience of teaching/research/extension in Home Science College or Institute out of which at least five years should be as Associate Professor or equivalent rank, (v) Administrative experience in a responsible teaching or research post for five years. (vi) Established reputation for initiative leadership and ability to organise, coordinate and supervise the activities of others.

2. **Professor of Home Science Extension Education** (One) : (Reserved for Scheduled Caste). Essential : (i) Second class B.Sc. (Home Science). (ii) Second class M.Sc. (Ext. Education (Agri. Ext./Home Science Extension). (iii) Ph.D. Extension Education (Agril. Extension/Home Science Extension). (iv) Ten years experience in Teaching/Research/Extension out of which at least 5 years should be as Associate Professor or equivalent. **Desirable** : (i) Evidence of having conducted independent research and published its results in professional scientific journals. (ii) Capacity for organisation as Head of Section/Deptt. of a teaching or research Institute/Administrative experience.

3. **Professor of Family Resource Management** (One): **Essential**: (i) Second class B.Sc. (Home Science). (ii) Second class M.Sc. in Home Management/Family Resource Management. (iii) Ph.D. in Home Science/Family Resource Management. (iv) Fifteen years experience of teaching/research/extension. **Desirable**: (i) Extension experience and experience in designing rural field work. (ii) Capacity for organisation as Head of Section or Deptt. of teaching or research institute administrative experience.

4. **Professor of Child Development** (One): **Essential** : (i) Second class B.Sc. (Home Science) (Hons.)/B.Sc. (Home Science). (ii) Second class M.Sc. (Home Science) in Child Development. (iii) Ph.D. in Child Development or Child Development and Family Relation. (iv) Ten years experience of teaching/research/extension in Child Development or equivalent. **Desirable**: (i) Capacity for administrative and organisational activities. (ii) Training capacity in areas of Child Development. (iii) Specialization in Early Childhood Education.

5. **Professor of Eminence in Agricultural Economics (Sir Chhotu Ram Chair** (One) : (i) Eminent Scientist of National and International repute with distinct and productive record of work in the discipline of Agricultural Economics.

6. **Professor of Forestry** (One) : **Essential** : (i) Second class B.Sc./B.S. (Agri)/ B. Tech./B.E. (ii) Second class A.I.F.C. (Associate Indian Forest College)/Master's degree in Forestry of equivalent. (iii) Ph.D. Forestry. (iv) Ten years experience in Forestry out of which 5 years should be in the rank of Assoc. Professor or equivalent. **Desirable** : Experience of post-graduate teaching and guiding research in forestry.

7. **Professor of National Culture and Integration** (One) : (i) At least second class graduate. (ii) Second class Master's degree in any branch of Arts/Humanities/Social Sciences/Fine Arts. (iii) Ph.D. in any branch of Arts/Humanities/Social Sciences and Fine Arts with ten years teaching/research/extension/administrative experience out of which five years as an Associate Professor/Reader. (iv) A person of national eminence in the field of Social Science/Humanities/Fine Arts with significant contribution in the area of National Integration and Indian Culture.

8. **Director Incharge Computer Centre** (One) : M. Tech. Computer Science with 10 years experience in Computer Science including programming. Note : If no person with 10 years experience is available, the relaxation in experience not less than 4 years would be considered.

9. **Associate Professor Child Development** (One) : (i) Second class B.Sc. (Home Science). (ii) Second class M.Sc. in Chld Development. (iii) Ph.D. in Child Development. (iv) Five years experience in teaching/research/extension in Child Development.

10. **Associate Professor Clothing and Textiles** (One) : Essential : (i) Second class B.Sc. (Home Science). (ii) Second class M.Sc. in Clothing and Textiles. (iii) Ten years experience in teaching/research/extension in clothing and textiles or allied fields. **Desirable :** Ph.D. in Clothing and Textiles or allied fields. Note : Preference will be given to candidates having Ph.D. qualifications.

11. **Associate Professor Family Resource Management** (One) : (i) Second class B.Sc. (Home Science). (ii) Second class M.Sc. in Home Management/Family Resource Management. (iii) Ph.D. in Home Management/Family Resource Management. (iv) Five years experience of teaching/research/extension.

12. **Associate Professor Meat Technology :** (One) (i) Second class B.V.Sc./B.V.Sc. and A.H./B.Sc. (Agri)/B.Sc. (An. Sc.), (ii) Second class in M.V.Sc./M.Sc. (An. Sc.)/M.Sc. (Food Tech.) with specialisation in Meat/Wool Technology (iii) Ph.D. in Meat Technology/Wool Technology. (iv) Five years teaching/research/extension experience as evidenced by published work in journals of repute.

13. **Assistant Professor Vocal Music** (One) : (i) Atleast High second class at Bachelor's level in Vocal Hindustani Music. (ii) Master's degree in first class in Vocal Hindustani Music or at least second class Master's degree followed by Ph.D. in Vocal Hindustani Music.

14. **Programmer**: (One) (i) M.A./M.Sc. in Maths/Statistics with one year diploma in Computer Science or B.Sc. in Maths./Statistics with 3 years diploma in Computer Science. (ii) At least two years experience in Computer Programming.

15. **Assistant Professor Extension Education** (One): (Discipline—Extension Education/Agril. Extension Education).

16. **Assistant Scientist Extension Education** : (One) (Discipline—Extension Education/Agril. Extension Education).

17. **Assistant Disease Investigation Officer** (One) (Discipline—Vety. Public Health and Epidemiology/Pathology/Bacteriology/Preventive Medicine/Parasitology).

Qualifications for Posts at Sr. No. 15 to 17

(i) Atleast Second class at Bachelor's level in the respective faculties i.e. for post at Sr. No. 15 and 16 B.Sc. (Agri) preferably B.Sc. Hons. (Agri) and for post at Sr. No. 17 B.V.Sc. and A.H.
(ii) Master's degree in the first class or with an OGPA of not less than 3.2/4.00 or equivalent in the disciplines mentioned against each post, OR atleast second class Master's degree followed by Ph.D in the disciplines mentioned against each post.

18. **D.P.E.** (One) : **Essential** : (i) Master's degree in Physical Education from a recognised University. (ii) Three years experience in recognised Senior Secondary (10+2) School or Intermediate College. (iii) Must be able to teach in English medium. **Desirable**: (1) Teaching experience in CBSE affiliated school. (ii) Active participation in co-curricular activities, and ability to organise such activities in the school.

19. **School Lecturer (Zoology) :** One: **Essential :** (A-i) A graduate in Medicine or (ii) M.Sc. in Zoology OR (iii) Post-graduate diploma in Zoology from the University of Delhi. (B) Degree or recognised diploma in Education. (C) Three years teaching experience to Sr. Secondary/Intermediate classes. **Desirable** : (i) Teaching experience in CBSE affiliated school. (ii) Active participation in Co-curricular activities and ability to organise such activities in the school.

20. **Technical Assistant (Home Science) :** One (Reserved for Scheduled Caste) First class B.Sc. (Home Science) or with an OGPA of 3.00/4.00. Preference would be given to candidates with M.Sc. (Home Science) subject to having B.Sc. (Home Science) 1st class or OGPA 3.00/4.00.

21. **Sanskrit Teacher : (One) : Essential :** (i) Honours in Sanskrit and Matriculation in English or B.A. with Sanskrit as optional subject. (ii) A recognised degree or diploma in education. (iii) Three years teaching experience in English medium school. **Desirable** : (i) Teaching experience in CBSE affiliated school. (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

Note: (1) The experience will be counted after a candidate obtains his M.Sc. degree. Further a period of 3 years towards obtaining Ph.D. degree shall be excluded from the experience.

(2) **For posts at Sr. No. 1 to 17.**

(a) The qualifications regarding experience are relaxable at the discretion of the competent authority in the case of candidates belonging to the Scheduled Castes or Scheduled Tribes, if at any stage of Selection sufficient number of candidates from those communities possessing the requisite experience are not likely to be available to fill up the reserved vacancies.

(b) Special weightage will be given to extension experience possessed by the candidates for po
indisciplines amenable to
tension.

(c) The persons who do not po
sess Ph.D. at the time of th
selection shall not be allowed
cross the stage of Rs. 130
in the scale of Rs. 700-40-110
50-1600 till they complete th
Ph.D.

(3) Number of vacancies me
tioned against each post c
vary.

(4) The benefit of reservation w
be admissible only to tho
S.Cs., B.Cs. and E.SMs can
dates who are domiciles
Haryana State.

5. **For post at Sr. No. 20**

The applicant should be
years old on the last date of
ceipt of applications. The up
age limit is 30 years relaxa
upto 5 years in respect of Sc
duled Castes and Backwa
Class candidates. For
servicemen the upper age is
years plus continuous milit
service added by 3 years.

Pay Scales

Sr. No. of Post	Pay Scale	Total emoluments at t initial of the Pay Sc (exclusive of House R and CCA).
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9-12	Rs. 1200-50-1300-60-1900	2685/-
13-17	Rs. 700-40-1100-50-1600	1788/-
18-19	Rs. 700-30-860/900-40-1100-EB-1250 (State Govt. pattern)	1295/-
20	Rs. 600-20-700-30-850/900-40-1100	1194/-
21	Rs. 525-15-600-20-660/700-30-850-EB-40-890-40--1050	1061/-

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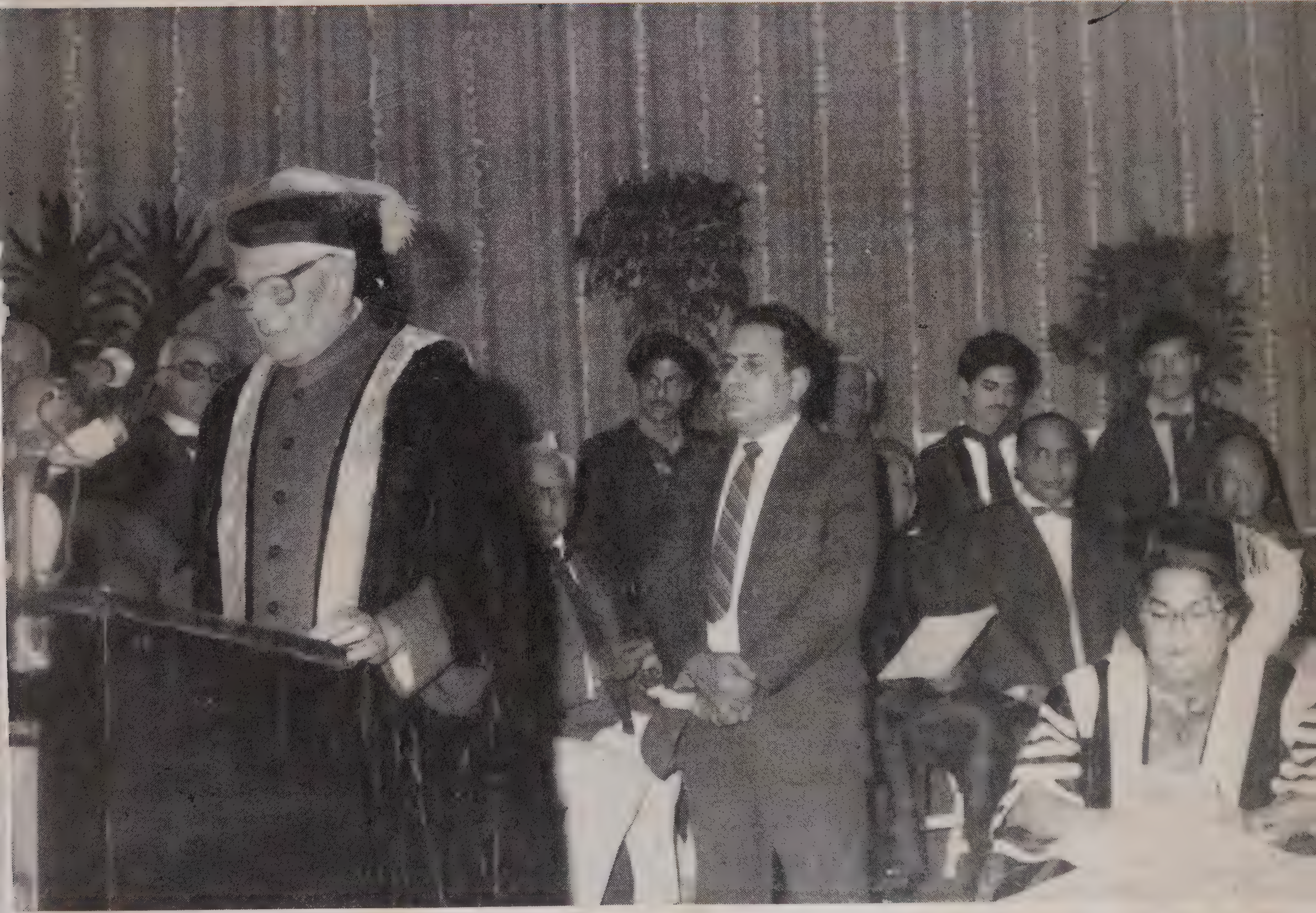
Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429. Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

DB 2

11 MAR 1987
C.F.T.R.I. MYSORE

University News

MONDAY, MARCH 2, 1987 Rs. 1.50



n'ble Shri R. Venkataraman, Vice-President of India, delivering the convocation address at the University of Bombay. Seated on his left is Dr. (Miss) M. D. Bengalee, Vice-Chancellor of the University.

AIDS
HOW TO PROTECT YOURSELF

AIDS is a dangerous disease and so far there is no known cure fot it. So there are lot of rumours about it. But it is not difficult to protect oneself from it, provided some facts about it are understood.

WHAT IS AIDS?

AIDS stands forAcquired Immuno-Deficiency Syndrome. It is caused by a virus that destroys the body's natural defence system.

HOW IT SPREADS?

The only likely way for someone to catch the AIDS virus is from the blood or semen from an infected person to get inside his or her body.

Most people get AIDS virus by having sex with an infected person. The rest have it by injecting themselves using needles shared with an infected person as happens commonly among the drug addicts. Only rarely transfusion of blood from an infected person have been responsible for its spread.

Not everyone who carries the virus develops AIDS. In fact most will not. But anyone who has the virus can pass it on, even if they feel and look completely well.

YOU DO NOT GET AIDS FROM

- Normal social contact such as shaking hands, touching and hugging.
- Swimming pools, restaurants and other public places.
- Coughs, sneezes and spitting.
- Clothing.
- Toilet seats, door knobs, food, glasses and cups.

YOU DO NOT CATCH AIDS WHEN YOU :

Donate blood.

Have injections or any other treatment from your doctor, dentist or any other health care worker.

WHAT YOU SHOULD AVOID?

- Casual sex with strangers. It is always risky. You may not know that the stranger is an infected person.
- Anal sex. It involves the highest risk and should be avoided.
- The more the sex partners, the more the risk.
- Sharing injection needles with drug addicts.

REMEMBER

AIDS is not a disease to take risk with. There is no cure. AIDS control depends on how people behave.

FOR MORE INFORMATION:

You may write to Asstt. Director General (AIDS), Directorate General of Health Services, Nirman Bhavan, New Delhi—110011

YOU CANNOT CURE AIDS, BUT YOU CAN CERTAINLY AVOID IT

Issued by CENTRAL HEALTH EDUCATION BUREAU
DGHS, KOTLA ROAD, NEW DELHI—110002.

davp 86/302

UNIVERSITY
NEWS

VOL. XXV MARCH 2
No. 9 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor :
SUTINDER SINGH

Traditional Values in Scientific Research

UNIT
1 MAR 1987
C. F. T. R. I., MYSORE

Dr. A. S. Paintal, President, Indian National Science Academy and Director-General, Indian Council of Medical Research delivered the Nineteenth Lal Bahadur Shastri Memorial Lecture on 6 February, 1987 at the Indian Agricultural Research Institute, New Delhi. Speaking on the theme: Are Traditional Values in Scientific Research Still Relevant? Dr. Paintal pleaded for a return to time tested old values in teaching and research. This has come not a day too late. In view of the urgency and relevance of the message, we are carrying full text of the lecture for the benefit of our readers.

Tradition has sometimes been a great source of strength to certain people. One such person was Lal Bahadur Shastri in whose memory I am giving this XIX lecture in the series. If one sees how he dealt with failures and successes and shouldered great responsibilities without the benefit of education at a high level one will realise that much of the strength he showed at times of difficulty and adversity owned its origin to his faith in traditional values.

Tradition has also been a source of strength to Nations. They take pride in the old traditions. Younger Nations envy the traditions of Nations with a great past who have traditions extending over thousands of years. Invariably they adopted many traditional values of other Nations with much benefit to themselves. In India, we have adopted the 500-year old traditions of scientific research in European Institutions with much success.

Till recently, scientific research was carried out mainly in the Universities. It has been the job of Univerrsity teachers to create new knowledge without regard to its possible applications. On the other hand, it has been the job of industrial organisations to apply this knowledge for the benefit of mankind and themselves. The intellectual and emotional appeal and the personalities of the two classes of people, i.e. those involved in creating new knowledge and those who apply it has been different in some ways. Because it is so profitable, creating new knowledge has now also become an industrial and national activity in USA. However, the great industrial organisations of USA know that the creators of new knowledge cannot be treated like one of their common folk, e.g. executive directors or supersalesmen, but they have to be provided the atmosphere of the Universities which they try to establish in their industrial organisations. In spite of this in many organisations the scientific staff acquire more wealth than is good for them. This not only reduces their creative abilities but it also separates them from the true creators of new knowledge in the academic organisations. Similarly, in our science organisations e.g. the Indian Council of Agricultural Research and the Council of Scientific and Industrial Research (and similar organisations), we have by our superior personal, laboratory and other facilities undermined considerably the morale of those in the Universities from where all of us came. Here began the erosion of our traditional scientific values. But before going further I must tell you how I was stimulated to choose the present subject of the lecture.

The stimulii for this lecture have come from two immediate sources. They both provided me excellent examples of how we have allowed our scientific standards to decline by disregarding the established traditional values that have existed for centuries.

Traditional Relation between Supervisor and Pupil

The first example is a letter from Prof. Sadasivan, who wrote to me as follows:

> "As your first objective is "to promote integrity, objectivity and ethical values in the pursuit of science" I have to make the following observations:
>
> > In my long scientific career during which time more than 500 research publications came out of our CAS in Botany at the university, I have never used my official position and claimed joint authorship in our publications. Today, it seems to be a recognised practice to share even Ph.D. thesis work, and invariably, the research guide even becomes a senior author! What are you going to do about this detestable unethical practice? We must do all in our power to curb this tendency. Our youth are revolting and we must look sharp and devise some effective measures to curb this tendency. With pranams."

The above letter relates to work in botany and so it is of immediate relevance to agricultural research. Most of you know more about Prof. Sadasivan's work than I do. In essence this letter states that scientists are disregarding some of the important traditions in scientific research regarding the relation between the teacher and the pupil. What these traditions? Some of the traditions are that the supervisor gives all to the student and takes nothing from the student. This puts the supervisor not infrequently in the same class as the student's parents and so where such a relationship has existed in India the students who might be 60 years old today continue to touch the feet of their old supervisors who may be 70 or 75 years old. The same kind of respect and relationship also exists in other parts of the world where the supervisor has been a classical type of supervisor and the student has also behaved in the traditional manner. Certainly, this kind of relationship between the supervisor and the student was quite common upto at least 1950 after which the tradition slowly began to be eroded. I will now give you a concrete example of the actual form of the relationship by quoting what a well-known life scientist has documented.

Walter B. Cannon was a well-known figure in Physiology. He worked in Harvard and followed the traditions of classical physiologists. In his book "The Way of an Investigator" (1945; Norton and Co.), he uses Lombard's experience as an example to illustrate what I am trying to say. I quote below what he has written on page 95 of his book:

> "The leader of a group engaged in research should always be generous in the care and treatment of those with whom he is working. This is an attitude they thoroughly appreciate and always remember. Warren P. Lombard, long Professor of Physiology at the University of Michigan, has told an illuminating story of his experience in Ludwig's laboratory to which, when a young man, he went for training. He told the professor that he was interested in fatigue but knew nothing about how to study it. Ludwig then defined a concrete problem for him, assembled the apparatus, and set him at wrok. When he encountered difficulties the old teacher helped him. At the end Dr. Lombard wrote an account of the methods he had used and the results he had obtained and submitted it to the professor—preliminary to publication. In a short time the paper was returned almost entirely rewritten, with only Lombard's name at the top of it. He took the paper to Ludwig and protested. 'You have set the problem for me', he said; 'you have shown me how to use the apparatus and solve my troubles; you have rewritten the paper, and your name should appear here with me'. 'No' Professor Ludwig replied. 'You have done the work and you should have the credit. 'But', he added, 'if you never do anything more, people will think that I did it!"

The last statement is very significant because it is obvious that if a student is given a problem closely related to the main interest of the supervisor (which could well be the reason for choosing to work under him), then it is obvious that the student must have received a lot of guidance apart from the main idea from the supervisor. Thus it is unnecessary for the supervisor to put his name on the paper particularly when he is thanked profusely by the student in the acknowledgements.

Ludwig worked in the last century. What was it like closer to present day? A good example of the attitude prevailing in the first half of the century is the attitude of Cannon himself. Here is what he says on page 93 of his book:

> "The treatment of his collaborators by the head of a laboratory may be put to a real test when the

time arrives for publishing papers. Methods which have proved satisfactory in my experience through several decades are as follows. If I have merely suggested the problem to be investigated indicated the pertinent literature, demonstrated the method to be employed, and from time to time have supervised the work, I have not allowed my own name to appear on the published paper as a joint author. Although the beginner who has carried on research in these circumstances has usually thanked me graciously at the end of his report, that acknowledgement has never been requested. When I have participated in the experimental procedures, my name has appeared as one of the authors. If I have done a major part of the work my name has been placed first, but if my role has been secondary, it has not had that prominent position."

That then is the answer to Prof. Sadasivan's letter. It should be a general rule that supervisors should not put their names to papers that have arisen as a result of work done by a student for his Ph.D. degree. I expect this recommendation will make many people uncomfortable but if generally implemented, I assure you, it will mean the end of much frustration and bitterness. Getting back to old traditional values will usher again a most enjoyable life in the laboratory.

However, this will mean a reduction in the publica• cations list of the scientists which is given such great importance by committees for giving grants, for prizes and positions. Long publication lists is a feature of more recent times—clearly a departure from tradition. It has led to several ill effects. It is, therefore, no wonder that on page 182 of last month's "Nature" (issue of January 15, 1987) the editors concluded as follows with regard to the problems of fraud in science:

> "As the economists would say, the research community has externalised the problem of making judgements about the qualities of its own members by brooding on bibliographies. Everybody's interest is to find a less slovenly way of making intellectual judgements about people and institutions, ... Decoupling the literature from promotion prospects would be a better goal."

One way of limiting the uselessness of large bibliographies is to ask people to submit only about five of their best papers for evaluation. This procedure automatically makes the large bibliography redundant. Thus you will see our traditional values in scientific research are particularly relevant in present times and I think will always be so.

The second stimulus for this lecture was a letter I got from the University Grants Commission (UGC) and I will now deal with that matter.

Traditional Method of Selection of Academic and Research Staff

The usual method of selecting lecturers in science departments has been to go by the research work they have done. I was therefore astonished to learn from the UGC about the National Policy on Education, 1986 which lays down that the teachers will be recruited on the basis of a common qualifying test. It states that the methods of recruiting teachers will be reorganised to ensure merit, objectivity and conformity with spatial and functional requirements. The pay and service conditions of teachers have to be commensurate with their social and professional responsibilities and with the need to attract talent to the profession.

In pursuance of this policy statement, it has been suggested in the Programme of Action for National Policy on Education that teachers will be recruited on the basis of a common qualifying test, the details of which will be formulated by the UGC. I was told that the Commission had constituted a committee with a view to working out the modalities for the conduct of such a test.

The thought of a university lecturer being selected on the basis of a qualifying test was quite unpleasant. I discussed the letter with some colleagues and they also agreed that by the time a bright young man interested in doing good research had finished a Ph.D., he would have lost to a large extent the knowledge that he needs to perform well in a competitive examination. In my reply I drew the attention of the UGC to my Zakir Hussain Memorial Lecture in which I had given an indication of the mistakes we had made in the past by instituting untried changes in the organisational structure of academic systems. For example, in 1982, the Delhi University approved a merit promotion system. This scheme has proved disastrous. Similarly, I told them that selecting university teachers through a test would be another terrible mistake. However, the situation in colleges is different and the qualifying test might help to remove mediocrity and corruption in colleges where no research is expected.

The aim of the National Policy on Education is praiseworthy i.e. to try to reduce corruption rampant in certain universities particularly in some universities in the north of India. However, inadvertantly, the execution of their plan of selecting university lecturers through a competitive test would have eliminated the best people with ideal qualifications i.e. those with the ability to produce new knowledge and teach students how to generate new knowledge. No doubt the university lecturer has also, as a part of his duties, to impart known knowledge but that is relatively easy. I have discussed the matter informally with the chairman of the UGC and some members of the Commission. They agreed that what I said made sense. I do hope it will be possible to reconsider the problem not only because it is risky to abandon traditions so suddenly but also because such a procedure for selecting academic and research staff has never been entertained by the best universities of the world.

Tradition Relating to Filling Academic Posts

There has been a tradition in many universities e.g. Delhi to fill academic positions by getting the best men in India. Many of the best professors appointed in the past have come from outside the universities both in India and abroad. This is still true of the European and American universities. In fact in Germany there is a rule that the highest grade of professor has to come from outside no matter how good the departmental faculty members are and how well they deserve the position. Thus, whereas the European and American universities have stuck to tradition, we in India have abandoned well-established traditions and have ended up in a mess because of the institution of the time bound promotion scheme. Combined with the rotation of headships on the basis of seniority of service the university system has just about been totally destroyed. One could even say that the kind of universities that existed in India in the sixties and the early seventies do not exist anymore. Now they are almost like intermediate colleges where the teachers are no longer interested in research but they take on Ph.D. students not for promoting research but in order to show that they deserve the next promotion after eight years or so. All professorships and readerships are now filled from within the departmental faculty.

Because of the security that the time bound promotion system provides, no member of the faculty (with few exceptions) is actually interested in doing research. He succeeds in remaining alive as a third-rate scientist by ensuring his place in the international fraternity by various methods, such as inviting foreign scientists to India and getting invited reciprocally. Few people find his papers of any value and so he remains mostly uncited in spite of scores of papers published in national and international journals without a reputation. No longer is the department known in India and the world by the reputation of the head of the department traditionally appointed because of his fame and his standing in science and his ability to bring in grants and promote the academic growth of the faculty in the department. The British still do not have rotating heads of departments. So is the case in most German Universities. In the USA because some of the most productive scientists find that chairmanships take a lot of their time they have given up being chairman but at the same time they have assured that the chairman is a competent man, not just the senior most individual.

Thus the tradition of appointing professors from outside is still relevant and we must revert to this practice again. In the best universities this will mean that the professor they attract from outside will invariably already be a professor. In the case of lesser known universities the person from outside will be a reader who has built up a reputation in research and who has grants and apparatus that he could bring with him. It would follow that the reader in the top universities would need to seek professorships in the lesser universities. This movement will do a great deal of good to the latter who are seldom able to get good people.

I, therefore, recommend that the whole mechanisms of appointment of lecturers, readers and professors be re-examined by the UGC and that steps be taken to revert to the traditional system prevailing before the seventies. This needs to be done most urgently.

Tradition of Humility

Traditionally, humility has been an outstanding characteristic of scientists. This has been gradually declining throughout the world. In the fifties I recall that even as a professor I didn't have the nerve to say that I was a physiologist. To me a physiologist meant people like Adrain, Katz or Eccles. In fact, I still cannot bring myself to say I am a physiologist when stating my occupation in a form. I know it is foolish but it is part of the tradition in which I have lived. And so I often wonder how people can write on their letter-heads or sign as "Professor of Eminence". This is a feature only of the Agricultural Research Council and I think it should be reviewed. I know of some people who have this unfortunate designation and they feel extremely embarrassed outside the agricultural environment. This departure from tradition by the ARC must be remedied. Similarly, the CSIR should consider providing another designation for their so-called "Distinguished Scientists". Certain scientists are quite embarrassed by this designation. One is surprised by what we have done in the last twenty years because humility has been part of our Indian culture—a tradition about three thousand years old. We must promote it as it (humility) is an essential ingredient for good scientific work.

Tradition of 'Small' Research and Interdependence

The tradition in University laboratories upto about 1950 was to try and carry out ones experiments meticulously with whatever one had or could borrow—mostly borrow. This meant having amiable relations with one's colleagues. Thus interdependence was an essential part of life in the laboratory. The change in the laboratories began with the large grants given to certain scientists in the USA and these grants kept on increasing. Soon in the sixties even physiologists talked of millions of dollars worth of grants. "Big Science" type of atmosphere became attractive and this attitude spread to several countries. This has now gripped Indian scientists who think doing research with little is below their dignity. It is not good work that concerns them but power and dignity. There is plenty of money for those who can write impressive grant applications. Such people, some of them with an unenviable past record acquire expensive equipment. Often due to the successful efforts of high pressure salesmanship, they buy equipment which they don't actually need and it therefore lies in the original packing cases for years. Greed and jealousy are now common features. You don't have to be nice to your colleagues anymore, perhaps invite him over for a cup of tea, so that he will let you use his fantastic precision balance. After all you have too of your own, why bother with him!

The tradition of making do with little and building parts of your own set-up is essential for good work. They say you cannot do outstanding work with a 'small science' set-up. That's humbug and in my opinion a case of one-upmanship by the equipment manufacturers. High pressure salesmanship is not easy to resist particularly when 'big science' approach is promoted. I know what it is like but we still never buy new equipment unless it is actually needed desperately. Most of our equipment is more than 20 years old, some of it actually more than 35 years old. We repair this whenever it goes wrong.

It is necessary to encourage the traditional approach with regard to the equipment that any scientist and his team may need. It should be noted that some of the best work in life sciences in many countries, certainly in physiology, is still done by scientists with small budgets.

The same situation holds for size of research teams. It has become fashionable to have a large empire that does the work while you go on jaunts all over the globe yourself. In India at present the hallmark of a successful scientist, in the minds of laymen or even scientists, is the number of times that he goes abroad for committee work or for conferences. Among scientists the thing in fashion is the so-called 'keynote' address and being invited to chair a session. Again this, i.e. big team approach is a departure from tradition. The best work is still done by one or two people working together with some help from post-doctoral fellows.

In this lecture I have given you an indication of some of the traditional values that we have ignored and the difficulties some of a serious nature, that this departure from tradition has caused to the universities and scientific research in India. This has come about because we have chosen to take the easy path instead of overcoming obstacles. The situation is still remediable but no time must be lost. There are people in India who can help us put our "scientific house" in order. We must take their guidance. I too have some concrete suggestions which I will be glad to share with those made responsible for providing a suitable plan of action. □

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On Restructuring the Curriculum

S. M. Israney*

Dichotomies

A number of dichotomies have dominated discourse about curriculum in higher education: general v/s special, formal v/s informal, introductory v/s advanced, interdisciplinary v/s disciplinary, lecture v/s discussion. Because this language governs our thinking about education whether we seek to transform the status quo or defend it, whether we are talking about the undergraduate or the postgraduate, it is worth a few minutes of our time to consider the adequacy of content and structure for guiding our thinking about curriculum.

We might start with one set that would seem most straight forward and appropriate in considering curriculum—the idea that there is a trajectory to be traversed by the student from one end, the introductory, to the other, the advanced. This is to be done in systematic, sequential and cumulative way.

There are many considerations to be taken into account.

The phenomenon which we call 'the major', the very spine of the present model of curriculum, should be carefully designed sequence of courses, and reflect the contours of an intellectual discipline, one encounters the major as a conglomerate of courses presenting a set of choices that are essentially arbitrary, adding up a little more than an exposure to a certain number of subjects. From what I have been able to discern, the only real source of curricular hierarchy in higher education is the presumption that a progressive shrinking of subject matter is somehow equivalent to intellectual advancement. There are exceptions, no doubt, at some institutions; the point is that to break this pattern, something must occur that is skin to defying the laws of gravity. The problem is that in the absence of any serious intellectual and educational organisation, merely convenient managerial or bureaucratic practices assume the status of educational principles.

The issue is: what is the productive educational way to pursue the organisation of a curriculum. My view is that most academic subjects are less amenable to a clear sequential ordering than our format suggests, nor is coverage any longer even imaginable. But then again coverage probably never was possible; moreover, that is not the problem. The problem is that we persist in treating academic subjects as if they were somehow 'automatically' and 'straight-forwardly' sequential or "coverable". Were we to relinquish this myth, we might free ourselves to think much more creatively as well as much more honestly about curriculum.

Another dichotomy which polarizes virtually all deliberations about collegiate curriculum, is between general education and special education. This, by definition, makes the learning process narrow and illiberal. While the condition or plight of general education is well known, we have paid too little attention to what the consequences of dichotomizing are for what is called specialized education.

Another point is that curriculum and programme development should take into account the information available to us about cognitive styles and the individual differences in learning abilities that our students bring into our colleges and universities. In other words, the curricular changes must be responsive to student characteristics. Today's students, and those who are likely to follow them in the years ahead, are in many ways different from their predecessors for whom we have designed much of the existing undergraduate and postgraduate curricula.

Major Factors

There are six major factors in designing curricula that are sensitive and responsive to student characteristics:

(a) The first is that we must focus curriculum development and reform efforts on our students. Some might argue that they already do, but I would contend that in most colleges and universities the primary determinant of undergraduate programmes is faculty interest in their own content area.

(b) The second factor is that under faculty development programme we should educate or sensitize faculty to the varying characteristics of their students for whom the curriculum is being designed.

(c) Third, we should revise our programmes as well as entertain the possibility of alternate teaching styles to address the differences in cognitive styles that our students bring to our classrooms.

(d) The majority of our existing curricula are designed for imaginary students. Simply put, when most faculty put together course syllabi, majors or general curricula, they are designing all of these educational experiences for a particular kind of student. My idea is that this student rarely conforms to the reality that professors encounter in their classrooms. To succeed in making any new curricula, sensitive to student characteristics, therefore, we must replace this imaginary student with an understanding of those students whom faculty are actually engaged in teaching.

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*Department of Economics, University of Bombay, Bombay.

(e) A change in curricula, necessarily involves a change in reading material—both, the writing of new textbooks and also making them available to the students. This work must be undertaken by the University, which should appoint a Board of writers and editors to bring out standard and relevant reading material. Every such book must be accompanied by a 'work book'. Of course the details of such reading material can be finalised after proper discussion.

(f) The curriculum must also include ways and means to inculcate among the younger generation a sense of human and moral values. One suggestion, in this respect, which may be considered, is to expose the undergraduate students, to the basic teachings of all religions. This will be a further step to national integration.

At the heart of our endeavour to design curricula with students in mind are the teaching and learning processes in a given social framework. These processes are dependent on interaction among some critical variables. The first set of variables is the cognitive and interpersonal characteristics of teachers. Next we have the content or the subject matter. Third, there are pedagogical methods; fourth, the cognitive and interpersonal characteristics of the students; and finally, the fifth, and the most important of all, the social framework.

In order to redesign our undergraduate and postgraduate curricula in ways that are responsive to the characteristics of our students in a given social framework, there will have to be changes in the way faculty think about the individuals they are trying to educate. They must come to grips with some cognitive reconstructing of their own; the imaginary student must be put aside. Because the way in which faculty think about teaching, affects the way that they teach, they must become increasingly aware of the fit between their students and their teaching methods and strategies. The need to become more and more aware of what is happening to the students—developmentally, and particularly cognitively. They need to recognise how students are viewing them: as source of information, as the authority, as a guide to learning, as a consultant, and as a facilitator of the learning process. Modifying the point of view of students requires knowing and understanding what it is. Teaching strategies, may therefore, need to be modified accordingly.

Such strategies are very essential for balancing the curriculum, and this can be achieved by introducing critical thinking courses in the liberal education curriculum.

The fundamental basis of revising the curriculum is to inspire the students to learn how to learn and correlate the knowledge so learnt, to actual and prevailing socio-economic and political conditions, not with the idea of making him a doctor, or an engineer, but basically to be a good citizen.

TATA INSTITUTE OF FUNDAMENTAL RESEARCH AND UNIVERSITY OF POONA

JOINT M.Sc. (PHYSICS) COURSE

ADVERTISEMENT No. 4/87

This two-year course leading to the M.Sc. (Physics) degree, will be conducted in the Department of Physics, University of Poona, with active participation of the scientists from TIFR in the teaching. The course will commence in July 1987 and a limited number of seats are open to research motivated students with a consistently bright academic career from all over India. Only those students who would have successfully completed their B.Sc. examinations before 15th July 1987 will be considered for admission to this course. The selection will be strictly on merit, on the basis of the academic record and a written test. TIFR will offer scholarships of Rs. 600/- per month to about twenty selected students and would pay an ad-hoc grant of Rs. 750/- to every selected student at the beginning of each semester. It is expected that the University of Poona may also be able to arrange for scholarships for an additional number of students. All such students selected on an all-India basis will be provided hostel accommodation in Pune.

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Application forms for this programme may be requested from the Administrative Officer (Establishment), Tata Institute of Fundamental Research, Homi Bhabha Road, Colaba, Bombay 400 005, along with a self addressed, stamped (Re. 1.00) envelope. The last date for receiving completed application forms is **April 15, 1987.** Please mark "TIFR-Poona University M.Sc, Programme" on the top left hand

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Entrance Examination for admission to (1) Bachelor of Engineering (4-Year) Degree Course in Civil, Electrical and Electronics, Mechanical, Electronics and Communication, Computer and Production Engineering, and (2) B. Pharm. (4-Year) Degree Course in Pharmaceutical Sciences will be held on **May 30 and 31, 1987** at the following centres:

Allahabad, Agra, Bhagalpur, Bhubaneswar, Bhopal, Bangalore, Bombay, Calcutta, Chandigarh, Delhi, Gauhati, Hyderabad, Jamshedpur, Jaipur, Lucknow, Madras, Muzaffarpur, Patna, Ranchi and Sindri.

provided sufficient number of candidates opt for the proposed centres.

Qualifications

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THOSE APPEARING THIS YEAR AT THE QUALIFYING EXAMINATION ARE ALSO ELIGIBLE TO APPLY. Seats are reserved for SC/ST candidates.

The last date for receipt of completed application form is **31-3-1987**.

Application form can be obtained by post on pre-payment of Rs. 25/- by crossed Postal Order, payable to the Registrar, Birla Institute of Technology, Mesra, Ranchi. The request should accompany a self addressed and stamped envelope of size 26 cm. x 12 cm. bearing postage stamps of Rs. 1.80 p. clearly mentioning the Form required i.e. Bachelor of Engg. or B. Pharm. — as the case may be.

J.B. Saksena

REGISTRAR & OSD

Universities and Good Citizenship

Hon'ble Shri R. Venkataraman, Vice-President of India delivered the Convocation Address at the annual convocation of the University of Bombay on 18 December, 1986. In his highly inspiring address, Shri Venkataraman called upon the graduands joining the Open University of Life to acquire Ph.D. of good citizenship—Ph.D. which by an accident of language also stands for patriotism, humanism and discipline. Excerpts:

Convocation

The ancient universities of Nalanda and Taxila were seats of learning, where scholars were engaged in an unhurried pursuit of knowledge for its own sake. That pattern of education would have continued were it not for the British encounter. When the British took over the administration of this country, an army of clerks was required by them: assistants and other categories of employees to man the Government. They promptly, therefore, introduced the pattern of colleges and universities which could provide personnel to man the services. Most of the boys were, upon graduation, absorbed in Government service by the British Raj and thus a link between a university degree and employment became strongly embedded in our minds. In Britain, however, Universities like Oxford and Cambridge functioned as our ancient centres had, centuries earlier, as great seats of learning and not as recruiting agencies of Government service. But a country is a country and a colony is a colony. Over a period of time, 'babu' education as it came to be described, led to a disparity between the availability of graduates on the one hand and of jobs on the other. Today, this disparity is a chasm of formidable proportions. Inevitably, a creeping frustration has set in among the educated unemployed youth of today, a frustration which threatens to disrupt the very social fabric of our country. Our educational system and, indeed, society itself has to take note of this danger and change its course betimes. In countries like ours with surplus manpower, the problem is to train the youth to become self-reliant to face the challenges of life. Carefully planned diversion of youth into gainful activities at appropriate levels will not only ease the pressure on universities and colleges but minimise the frustration which envelopes the young after graduation. The degree must not suffer further devaluation.

It must, however, be borne in mind that, at a more fundamental level, a degree is not the end of education because an examination cannot end the trials of life. The noted historian Arnold Toynbee once said : "It is both absurd and unjust to classify a person, once for all, as being first class or third class when he is only twenty-two years old. There are slow-growers who blossom late in life and conversely there are brilliant starters who fail to fulfil their early promise." Toynbee goes on to give the example of Winston Churchill who was apparently backward as a child but brilliant as a young man, a failure once again in middle age to become an admittedly great man in his sixties. Nearer home, we have the examples of Mahatma Gandhi and Jawaharlal Nehru whose academic records in school and college were none too brilliant and gave no indication of the global greatness that awaited them. Examples of the converse phenomenon of outstanding achievement at University followed by mediocre anonymity later are more difficult to cite for the obvious reason that history loses track of such persons. My purpose today in emphasising the error in regarding academic achievement as a test of personality is to put the importance of degrees and convocations in perspective. All those graduating today have just been through a rigorous test, but, important as the test has been, it is part of a series of appraisals and reappraisals that await them in life. Such tests of one's practical performance, stage after stage of life, will have to be faced with the same if not greater seriousness. And it is this running track on which graduates are placed on the day of the Convocation. The race is of course, a race for success. But success not just in mundane affairs—which are not unimportant—but in the longer issues of life.

The aim of education is to fit a person to face the basic challenges of life. What, in our context, are these challenges? Let, us for a moment, cast a long gaze. India that consists of diverse regions, talking different languages, following different religions, customs and traditions was welded together into a Nation by Mahatma Gandhi. The concept of Indian nationalism immediately took root and grew into a mighty movement for freedom and independence. This task was achieved by the educated leaders from the four corners of India who had imbibed the spirit of John Stuart Mill and the democratic traditions of the British. In inculcating the spirit of nationalism, democracy and freedom, noble service was rendered by the Universities. It would be useful to ask, are the Universities today carrying on the rich tradition of yester years or are they allowing themselves to be used as nurseries for seeds of regionalism, casteism and separatism? We find that instead of broadening their vision, students are priding themselves on narrow regionalism. Such an attitude if allowed to grow unchecked will shatter the national fabric and push us back to medieval times. This situation poses a challenge to life, collective and individual, in India and our youth must meet that challenge whenever they encounter it. Just as, during the freedom movement, every university student was a nationalist at heart (whether he was active in the movement or not), even so every university student today must be an integrationist at heart, whatever be his field.

He must also reflect and promote, along with national unity, the economic renaissance of India. India today is the world's biggest common market. Its people and products can move freely from Kashmir to Kanyakumari under the guarantees of our Constitution. Its size and growing economic strength have earned for the country a respected place among the comity of nations. While there is much in our times that distresses us, let there be no mistaking the fact that we are living through historic times. We have transformed the backward benighted agricultural India that it was prior to Independence, into a modern industrialised nation in the world. Thanks to the vision and foresight of Pandit Jawaharlal Nehru, heavy industries like steel, coal, aluminium and copper were started on a massive scale through the successive Five Year Plans. Crude oil production has gone up from 0.2 million tonnes in the early 53 to 30.18 million tonnes in 1985-86, while installed capacity for power generation will reach 64,736 MW at the end of this Plan. The manufacture of engineering goods, fertilisers, chemicals and pharmaceuticals and consumer durables have followed as a corollary to the establishment of basic industries and the development of infrastructure. Thus industrial economy has strikingly diversified, manufacturing capabilities have expanded over a wide range of products and have acquired adaptability for designs, structurals and machine tools.

If I have somewhat laboured this point it is to impress on you that we have every reason to congratulate ourselves on our growth and development. It has become the fashion among seeming intellectuals to denigratie ourselves and destroy the self-confidence so necessary for progress. While I will not be euphoric on our progress, I cannot accept the ill-informed criticism that detracts the past achievements and undermines future national effort. Viewed in the proper perspective, our achievements are such as should spur us towards higher goals. India's is an expanding economy and its horizons are, therefore, limitless. Its market is in fact the envy of many a developed country. Its scope for innovative and entrepreneurial skills are limitless. Financial support to young entrepreneurs through Bank Finance is an attractive feature of our national policy and must hold interest for the graduates of the day. In fact

UNIVERSITY OF BOMBAY

HIGHLIGHTS

1. **The University has adopted the slogan "Do not look for a job, do a job" to promote vocationalisation of education and help students enter employment and be productive early in life. Action Committees of professors and college teachers of arts, science and commerce faculties have been formed to restructure undergraduate courses to be more vocational and work oriented.**
2. **Teacher training programmes are being reformulated to help teachers face new challenges of classroom interactions with new educational technologies.**
3. **24,500 NSS volunteers have been anrolled for Social Service programmes like eradication of adult illiteracy, mass immunisation of infants, anti drug drive, mass functional literacy, etc.**
4. **Rupees three lakh are spent on the education of class IV employees of the University through the contribution of NSS volunteers.**
5. **Two programmes of para-medical courses and population education have been launched through the colleges.**
6. **250 adult education centres in 30 colleges have been organised this year.**
7. **The University has bagged Maulana Abul Kalam Azad trophy for best performance in sports.**

the opportunities in life today are far greater than in earlier days. I am sure the graduates who pass out of the portals of this University will keep their minds alert and open and seize new opportunities, develop new skills and grow along with the march of science in the world.

If scientific and technological developments are not translated into schemes for the relief of the vulnerable sections of society, these very developments will soon get discredited. A deprived people will turn into a desperate people and the peaceful evolution of society will then become a casualty. Thus, confining the fruits of development to certain regions or certain classes constitutes a threat to society. We have managed to inject scientific agricultural methods in a rigidly traditional area and to introduce mechanised small scale units in the place of traditional cottage industries. We have made massive investments through successive Five Year Plans but all these have not mitigated the gigantic problem of unemployment and under-employment. Nor have they made a noticeable impact on the great number of persons below the poverty line. One of the reasons for this sorry state of affairs is the unbridled growth of population. From about 320 million people three decades ago, the population of India has increased to over 750 million today. Besides, the rate of growth of population among the vulnerable sections of society is disproportionately larger than in the middle and affluent classes, thereby accentuating the increase of people below the poverty line. There is an urgent need, therefore, among the educated people to create a climate for the acceptance of population control in the country. I am sure that those graduating today will bear this in mind and thereby play a role in the strengthening of our sinews as a developing economy.

Friends, the remarkable thing about our development is that it has taken place within the framework of political democracy. That we are the largest democracy in the world is a truism. But I would like you to ask yourselves, what is democracy? Does the holding of elections at stated intervals constitute democracy? Is democracy majority rule? Will the backing of the majority in the Legislature, legitimise anti-national measures? These and several other similar questions assail the attempted definitions of Democracy. In my view, Democracy is Government by public opinion, in which the administration should be in tune with the public opinion or the general will of the people. Unfortunately, there is no instrument to measure public opinion and very often sectoral opinions are pushed forward as public opinion. A violent minority by high pressure publicity or through much publicised acts of violence often creates the impression that it represents the public opinion of the country. Or a passing emotional outburst may be mistaken for the public opinion of the land. It is, therefore, necessary that a sober and objective opinion should be created in times of strain and stress. This can be done only by the educated, cultured and informed sections of society. Universities all over the world are engaged in the task of creating informed opinion on matters of public interest and policy and our universities should be encouraged to do so. The students passing through the portals of the University should be trained to sift the truth from the conflicting and, very often, self-serving propaganda and project objective and informed public opinion so that democracy may be sustained in our country.

I had stated earlier that one of the aims of a University is to make better citizens. Virtues like tolerance, discipline, law abidance and even a small but important thing like punctuality, cannot be developed over-night but must be cultivated from a very early age in the schools and colleges. True democracy rests on voluntary observance of the laws of the land and not on the enforcement thereof by Authority. If University education inspires a *patriotism* to sacrifice everything for the freedom and honour of the motherland, *humanism* to regard every person, irrespective of religion, caste or creed as a brother and *discipline* to perform one's duty to one's own satisfaction, it would have rendered a real service to its *alumni*. I find that patriotism, humanism and discipline, by an accident of language, form the acronym Ph.D. May I, therefore, commend to all those who graduate today, as Bachelors and Masters of various disciplines, to proceed further on their own and go on in the Open University of Life to acquire the Ph.D. of good citizenship. *That* requires not a competitive race but a relentless agility of motion and steadfastness on the track. Be mindful of obstacles, but do not be daunted by them.

Our great leader Jawaharlal Nehru once said: "There is no natural conflict between free will and determinism. Life is both. Life is like a game of cards. You have no control over the hand that is dealt you. The hand corresponds to determinism; the way you play the cards corresponds to free will."

I trust you will play your hand effectively and make a success of your lives. ☐

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
March 7-8, 1987	Seminar on New Education Policy and its application to the Mineral Industry	To evaluate the content and method of Mineral Engineering Education vis-a-vis the New Education Policy.	ISM Teachers Association, Dhanbad.	Dr. S.K. Basu, Department of Humanities & Social Sciences, Indian School of Mines, Dhanbad - 826004.
March 10-14, 1987	All India Seminar on Contemporary English Fiction	To discuss problems and issues arising from the study of contemporary fiction, teaching of fiction, fiction criticism, feminist fiction and writing of fiction.	Department of English, University of Burdwan.	Prof. Laxmi Parasuram, Department of English, Burdwan University, Golapbag, Burdwan.
March 23-27, 1987	Short term Course on Base Metals Identification and Delineation through Satellite Remote Sensing	To acquaint the participants with the techniques of Image Processing and Digital Analysis of Landsat Data with special emphasis on the application of techniques to the fields of Water Resources, Pedology, Forestry, Earth Sciences and Mineral Resources	Centre of Studies in Resources Engg., IIT, Bombay.	Dr. T.V. Pavate, Chief Project Engineer, Training Extn. & Project Cell, R.S.. No. VI, C.S.R.E., Indian Institute of Technology, Powai, Bombay.
March 26-27 1987	Seminar on New Education Policy	To evaluate the New Education Policy and Programme of Action documents	Zakir Husain Centre for Educational Studies, Jawaharlal Nehru University, New Delhi.	Dr. (Mrs) Sushila Singhal, Associate Professor, Zakir Husain Centre for Educational Studies, JNU, New Delhi - 110067.
May 9-10, 1987	National Seminar on Physical Fitness and Sports Standards in Universities	To identify various problems impinging upon sports performance and to deliberate on issues having significant bearing on mass awakening and motivation for promoting sports and physical education.	Association of Indian Universities (AIU) in collaboration with Mohanlal Sukhadia University, Udaipur.	Shri G.S. Sivia, Dy. Secretary (Sports), Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi - 110002.
September 6-19, 1987	International Seminar on University Administration	To consider the impact upon administration of changes in both the external and internal environment of universities and the development of appropriate styles, structures and management in administration	The British Council, London (to be held at the University of Salford, Salford, England)	Mr. Stuart R. Bosworth, Registrar, University of Salford, Salford, England M5 4WT.
November 16-20, 1987	Seventh National Symposium on Radiation Physics	To provide a forum for a collective discussion and identification of the emerging new directions in the field of Radiation Physics	Department of Physics, Mangalore University, in collaboration with the Indian Society for Radiation Physics	Dr. N. Lingappa, Convener, Programme Committee, NSRP-7 and Head, Department of Physics, Mangalore University, Mangalore.

Workshop on Traditional and Modern Theatre

A UGC sponsored, 30-day workshop on Traditional and Modern Theatre was organised by the Department of Theatre Arts of Andhra University, Waltair, from 25th January 1987 to 23rd February 1987. Distinguished speakers like Dr. Anuradha Kapur, Asstt. Professor of Dramatics in National School of Drama, New Delhi, Sri A.R. Krishna, Former Director of A.P. Repertory, Hyderabad, Dr. P. S. K. Appa Rao, former Director of A.P. Cultural Affairs, Hyderabad, Prof. Niranjan Goswami of Indian Mine Theatre, Calcutta, and Smt. Jamuna, famous actress of Telugu Screen addressed the participants. The morning session of each day starting from 10.30 a.m. contained two lectures of one hour duration. The afternoon session was devoted for rehearsing plays. The students presented plays during the evening.

The workshop was inaugurated by Prof. K. Ramakrishna Rao, the Vice-Chancellor of Andhra University on 25th January, 1987. Sri K.B. Tilak, Film Producer and Director, was the chief guest while film actor, Murali Mohan, was a special invitee to the function, Prof. S. Venkateswara Rao, Principal of Arts College, Andhra University presided over the meeting. Stressing the need for the revival of traditional form in theatre arts and restoring its past glory the Vice-Chancellor in his inaugural address said that efforts should be made to create an atmosphere where people do not hesitate to buy tickets to witness a play. It is the responsibility of amateur organizations like theatre institutions to impart proper foundation in the fundamentals of theatre arts and training the students to acquire skills necessary to organise their own performance. He deplored the absence of theatre activities in the present academic atmosphere.

Film Producer and Director, Mr. K.B. Tilak in his inaugural speech stressed the need for promoting street plays and preparing troupes for presenting plays in rural areas. He advised the artistes to not to disdain the practice of free shows to the audience. It is the responsibility of the artistes to create interest in the audience so that they willingly come forward to buy tickets. For the implementation of the above objectives Mr. Tilak offered financial assistance on behalf of the National Institute of Social Action (NISA). Film actor Murali Mohan hoped that greater prominence be given to theatre performance by the artistes of the Telugu film industry. Dr. Attili Krishna Rao, the Director of the Workshop, said the project was intended to keep alive the traditional form in theatre which was losing ground. The traditional folk form 'Tiger Hunt' depicting the tiger in its ferocious form was performed by an artiste to mark the inauguration of the workshop.

The significance of drama among every field of art was described on the 3rd day of the workshop by Dr. A. Krishna Rao. He emphasized that it is essentially an art of affecting and moving audiences in predetermined ways allowing the artiste to communicate his ideas about experience in a unique and forceful way. The students of the workshop had a rare opportunity of hearing the famous Telugu actress Smt. Jamuna on the 4th day. Expressing a deep concern on the dowry system in our country she urged students to educate and create an awareness through the theatre to eradicate this evil practice. Deploring the condition of theatre in Modern India she exhorted them to come forward in staging plays useful to the society.

An interesting lecture on the fundamentals of broadcasting and presentation of radio plays was delivered by Mr. C.V. Suryanarayana, a producer of plays in A.I.R., Visakhapatnam.

The workshop provided knowledge on a wide range of subjects and on every aspect in the field of theatre arts. It provided an initiative for the students to come forward to create social awareness in theatre. Highlighting the need of presenting plays for the social upheaval of the society, it stressed the need of keeping alive the traditional form of theatre. The workshop exhorted the students to study theatre arts:

(i) For the active and critical appreciation of Theatre arts.

(ii) For the development of imagination and self expression through the use of theatre.
(iii) For the revival and reawakening of the theatre.

(iv) To foster creative teamwork in artistes.

Patiala Hosts Punjabi Conference

The Department of Punjabi of the Punjabi University, in collaboration with the Punjabi Academy, New Delhi, organised a two-day conference on Punjabi Language, Culture and Theatre on February 7 and 8, 1987 at Patiala. Inaugurating the conference, Dr. Bhagat Singh, Vice-Chancellor of Punjabi University urged the scholars to work out a tangible solution to the prevailing situation in the state by basing their discussions on the positive aspects of Punjabi Culture. He cautioned them not to narrow its perspective by misinterpreting its ethical values. He appreciated the work done by the Punjabi Academy during the last few years to promote the cause of Punjabi Language, Culture and Theatre.

Mr. Manjit Singh, Secretary, Punjabi Academy and Commissioner, Delhi Development Authority, said that universities and other educational institutions can play a pivotal role in the complete development of Punjabi. Highlighting the activities of Punjabi Academy, he said that the Academy was endeavouring to uplift the standard of Punjabi by opening libraries, and by providing teaching facilities through various means.

Padamshri Prof. Sant Singh Sekhon, who presided, said that it was only through the sincere efforts of Punjabi scholars that the standard of Punjabi language and culture has developed considerably. He urged the Punjab Government to devote its sincere efforts for the development of Punjabi Language and Culture.

B.Arch Degree Recognised

The five-year B.Arch. degree course conducted by Manipal Institute of Technology (MIT) under Mangalore University has been recognised by the Council of Architecture, New Delhi. The recognition enables a B. Arch. degree holder from Mangalore University to register as an architect with the Council of Architecture and practise the profession. The Council of Architecture is a statutory body incorporated under the Architects Act, 1972 and is responsible for regulating the practice and education in the field of architecture.

Job-oriented Courses at Women's Varsity

The Padmavathi Women's University at Tirupati is understood to have decided to diversify courses in the university to make them job-oriented. The Vice-Chancellor, Dr. Vanaja Iyengar, said that the University proposes to introduce one-year diploma ourses in poultry keeping and dairy development, physiotherapy, acquaculture, travel and tourism and special education.

At the postgraduate level, Dr. Iyengar said, a special 2-year course in developmental studies, rural development and women development have also been proposed. MSc. Courses in microbiology, environmental studies and electronics and communication are also expected to be started soon.

The university also proposes to deversify three-year degree courses to include law, food technology, hotel management and catering technology and business management.

Bihar to Streamline Varsity Teachers Appointments

The Bihar State Government is reported to have decided to streamline the appointment of university teachers. It has asked the State University Service Commission to prepare a panel of subject teachers from a single interview and post them in different universities depending on the number of vacancies available. Under this system, the aspiring candidates will have to apply only once for all the vacant posts in the concerned subject and their cases would be considered in a single interview.

Steps are being taken to amend the existing statutes for university appointments so that the new system could be introduced at the earliest.

News from Agril. Varsities

Agricultural Officers Workshop

The Directorate of Extension Education of the Punjab Agricultural University organised a 2-day Agricultural Officers' Workshop at Ludhiana to formulate strategy to thrash out farm problems and increase foodgrain production of the *kharif* crops. Inaugurating the workshop Dr. Sukhdev Singh, Vice-Chancellor, stressed on diversification from traditional crops towards cash crops. Farmers, he said, should be attracted to cultivate new and medicinal crops for which the technology had already been developed by the University. He was equally enthusiastic in advocating the cultivation of oilseeds and pulses for which the support price has already been announced.

Admitting the usefulness of farm mechanisation in Punjab agriculture, Dr. Sukhdev Sngh called upon the Directorate of Agriculture, Punjab, to make fullest use of the expertise of farm engineering graduates of the University in serving the farming community of the State.

The Director of Agriculture, Punjab, called upon the PAU scientists to help train and up-date the technical know-how of the farm extension officers of the department so as to make them better equipped to meet the technical needs of modern agriculture and thus serve the farmers more efficiently. He appreciated the trend of Punjab farmers towards cultivation of cash crops. During the year 1986, he said, there was an increase of an area of about 2.62 lakh hectares under cash crops. He called upon the farmers and farm experts to lay more emphasis on green manuring, pest control and weed control in order to swell the foodgrain production. Only with proper weed control, he said, there could be 15 to 20 per cent increase in foodgrain production. He also felt the need for giving higher education to the farm officers of the department and for this he said he could spare about 35 officers to pursue their Master's and Doctoral programmes.

The Director of Research, Dr. K.S. Nandpuri, while announcing the release of new crop varieties, said that the University would now gear up its research in the fields of bio-technology, farm engineering, and production of oilseeds and pulses.

Workshop on Sub-tropical and Temperate Fruits

An ICAR sponsored three-day All India Workshop on Sub-tropical and Temperate Fruits was recently organised in the Konkan Krishi Vidyapeeth, Dapoli. Dr. G.L. Kaul, Deputy Director General (Hort.), ICAR, who inaugurated the workshop, stated that great emphasis had been laid on horticultural promotion work during the Seventh Five Year Plan. He acclaimed the work carried out by various institutes in the country in the development of horticulture and pinpointed the gaps in the research. He urged the scientists to take up projects to fill in the gaps. Dr. P.V. Salvi, Vice-Chancellor, Konkan Krishi Vidyapeeth chaired the function. He appealed to the scientists to come out with solutions on various problems faced by the farmers in taking up horticultural plantations on extensive scale. He urged that much attention was needed in tissue culture research and introducing hybrid vigour.

The workshop was attended by about 150 scientists drawn from various ICAR institutes and farm universities.

Agriculture Varsity at Raipur

The Madhya Pradesh Governor, Mr. K.M. Chandy, is reported to have promulgated an ordinance to establish an agriculture university at Raipur. The university is expected to start functioning soon.

News from Abroad

Force-Fed-Fish Farming

A study conducted by Dr. Angela Arthington, of Griffith University, and Mr. Alex Anderson, of the Queenland Institute of Technology, both in Brisbane (Australia) focuses on early growth patterns in fish. The researchers have begun investigating accelerated fish farming, through trials of forced feeding and more efficient aquacultural husbandry.

A batch of Australian silver perch larvae, which commonly resort to cannibalism during early growth stages, will be force-fed in computer regulated tanks while dietary variations of protein, starch, fat, vitamins and minerals are studied. The program will try to develop a more cost-efficient method of feeding than the current practice of using live organisms such as plankton and larvae.

The alternative is a computer-controlled pellet-based diet, with further programmed regulation of water replacement to control fouling. Water flow, temperature, and lighting also will be computer regulated. Mr. Anderson, a biochemist, said the water replenishment study would make the fish comfortable and prevent them attacking one another, as they usually did in a competitive environment. He said tank hygeine had been a major problem in aquaculture where live food was used.

Dr. Arthington, a fish ecologist, said the artificial diet control would provide the basis for applications to other native fish, such as barramundi, possibly even the sought-after estuarine mud crab.

Sports News

North Zone Lifts Vizzy Trophy

North Zone Universities Cricket Team annexed the glittering Vizzy Trophy for the year 1986-87 by defeating the East Zone Universities Cricket Team. The tournament was held at Ravishankar University, Raipur from Feb. 5 to 12.

In the semi final, North Zone defeated South Zone in an outright victory. In the other semi final, East Zone won over West by virtue of first innings lead. In the final match, the scores were:

North Zone — 291 and 96 for 2

East Zone — 165 and 217

Dr. S.M. Aggarwal, Vice Chancellor of Ravishankar University, Raipur, awarded the Trophy to Manu Nayar, Captain of the North Zone side at an impressive function.

Vizzy Trophy Champions North Zone Team with Dr. S.M. Aggarwal, Vice-Chancellor, Ravishankar University and Shri G. S. Sivia, Deputy Secretary (Sports), AIU, seated 2nd from right and left respectively.

North Zone Skipper Manu Nayar receiving the Vizzy Trophy

We Congratulate . . .

(1) Dr. K.H. Cheluva Raju who has been appointed as Vice-Chancellor of the Gulbarga University, Gulbarga.

(2) Dr. Ram Dayal Munda who has been appointed as Vice-Chancellor of the Ranchi University, Ranchi.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Library Science

1. Avasthi, Meenakshi. *Resistance to technology : A behavioural study with particular reference to libraries and information centres.* BHU. Dr. Y.P. Dubey.

Psychology

1. Jain, Sudha. *A study of menstrual stress in the growth and development of womenhood identity.* HS Gour. Dr. Y.E. Vagrecha.
2. Jaiswal, Nirmala. *A study of neo-behaviouristic changes in human behaviour.* BHU. Prof. R.R. Tripathi and Dr. L.V. Guru.
3. Kushwaha, Arunendra Kumar Singh. *A comparative study of movement recall and recognition among normal and blind persons.* HS Gour. Dr. S.J. Singh.
4. Mishra, Nachiketa. *Communication and effectiveness in organizations.* BHU. Dr. A.P. Shukla.
5. Misra, Shyam Sunder. *Motivational and congnitive change among rural people.* BHU. Dr. A.P. Shukla.
6. Pandey, Rajesh Kumar. *Communication, leadership and organizational performance.* BHU. Dr. A. Prakash.
7. Pateria, Krishna. *A study of some personality characteristics of mentally retarded delinquent children.* HS Gour. Prof. Jayaprakash.
8. Singh, Alok Kumar. *Executive effectiveness in public and private organisation.* BHU. Prof. B.S. Gupta.
9. Singh, Savitri. *Circadian rhythme and performance on psychological tasks.* BHU. Prof. B.S. Gupta.
10. Singh, Sharmishtha. *A study of parental acceptance-rejection in relation to aggression and locus of cottrol in children.* HS Gour.
11. Sinda, Sangeeta. *Original behaviour in human performance.* BHU. Dr. A.P. Singh and Prof. Rakesh.

Political Science

1. Ajai Singh. *Chief Minister in U.P.* BHU. Prof. P.D. Kaushik.
2. Mishra, Pawan Kumar. *Police administration at the district level: A study of District Varanasi in Uttar Pradesh.* BHU. Dr. Serswati Srivastava.
3. Pandey, Veena. *Dr. Bhagwan Das ke rajnitik vichar.* BHU. Dr. H.N. Tripathi.
4. Sharma, Janardan. *Muslims polity in Nepal.* BHU. Dr. H.N. Tripathi.

Economics

1. Ajit Singh. *Agricultural economic development.* BHU. Dr. (Miss) K.L. Kedia.
2. Alphonse, K.J. *Economic issues in operation flood : A case study of Kerala.* Kerala. Dr. M.A. Oommen.
3. Barforoush, Hamid. *Problem of rural development.* BHU. Dr. D.K. Mishra.
4. Kabir, M. *Growth of service sector in Kerala.* Kerala. Dr. T.N. Krishnan and Dr. P.R. Gopinathan Nair.
5. Maya, I. *Labour productivity and rural poverty in Kerala.* Kerala. Dr. G. Karunakara Pillai.
6. Rahman, K.B.M. Mahbubur. *Economics of development.* BHU. Sri R. Subrahmanyam.

7. Shrivastava, Bindu. *Madhya Pradesh ke krishi vikas mein. bhoomi vikas bankon kee bhoomika: Sivani Jile ke vishesh sandarbh mein.* HS Gour. Dr. G.P. Mishra.

8. Usha, L.R. *Streams and patterns of migration from Kerala.* Kerala. Dr. P.R. Gopinathan Nair.

Law

1. Awadhesh Kumar. *Administrative control over companies and judicial response.* BHU. Dr. Surendra Nath.

2. Tiwari, Chaturbhuj Nath. *Companies affairs and its investigations under the Indian Companies Act.* BHU. Prof. V.N. Singh.

Education

1. Shukla, Nishapati Bhushan. *An anthropometric somatotypological and physiological study of cricket players with special reference to two levels of performance.* BHU. Dr. S.S. Sharma.

Commerce

1. Akhilesh Kumar. *Study of rural regional banks finance to agriculture in Mirzapur District.* BHU. Dr. S.P. Srivastava.

2. Arora, Anup Kumar. *Development of telephone industries in public sector: A case study I.T.I., Naini, Allahabad.* BHU. Prof. D.P.N. Singh.

3. Ashok Kumar. *Khadi and village industry in Uttar Pradesh: A case study.* BHU. Dr. A.A. Ansari.

4. Chauhan, Rajinder. *Project appraisal techniques for agro based industries in Himachal Pradesh, India.* HP. Dr. Bal Krishan.

5. Dhir, Meenakshi. *Dimensions of regional disparities in commercial banking in India.* HP. Dr. Bal Krishan.

6. Neami, Abdullah Abood. *Export trade and international marketing with special reference to Indo-Iranian relations,* 1956-1985. Shivaji. Dr. D.H. Hindocha.

7. Orisakwe, Oliver Onona-Ogbo. *Export promotion strategies as a base for industrial growth in developing countries: A case study of Nigeria.* Devi Ahilya. Dr. D.P. Mishra.

8. Pandey, Rajesh Datta. *Industrial Finance Corporation of India: An appraisal of its working.* BHU. Dr. C.P. Mall.

9. Pradhan, Govind. *Appraisal of the working of the special financial institution of U.P.* BHU. Dr. J.P. Singh.

10. Ram Briksh. *Social security for industrial workers in U.P.* BHU. Dr. S.K. Singh.

11. Saksena, Keshava Dayal. *Planning in India.* BHU. Dr. S.N. Mehrotra.

12. Sekhara Rao, Nannapaneni Chandra. *A.P.S.R.T.C.: An appraisal of its working.* BHU. Dr. D.P. Rai.

13. Sharma, Shyam Prashad. *Concentration and stratification of Indian capital,* 1940-1980. HP. Dr. M.K. Sharma.

14. Singh, Abdhesh Kumar. *Role of the KVIC in the development of khadi and village industries.* BHU. Dr. O.P. Rai.

15. Singh, Ajay Kumar. *Human resource of selected cooperative banks in India.* BHU. Dr. A. Ansari.

16. Singh, Raj Kumar. *Agricultural price movement in India,* 1951-85. BHU. Dr. K.M. Pandey.

17. Tanwar, Kuldip Singh. *Managing the ecological system of Shimla Hills: A study of inter-action between horticulture and forestry sub sector.* HP. Dr. M.K. Sharma.

18. Yadav, Onkar Singh. *Working capital management in State Govt. enterprise in Uttar Pradesh.* BHU. Dr. M.B. Shukla.

Home Science

1. Sindhu, S. *Role of diet and nutritional status in chronic pancreatitis with special reference to cassava consumption.* Kerala. Dr. V. Balakrishnan and Dr. L. Prema.

Business Management

1. Ajit Singh. *Participative management in steel industry in India: A comparative study of public and private sector.* HP. Dr. Suresh Kumar.

2. Kaushal, Vijay Kumar. *Case studies acquisition/mergers, take overs of companies in India.* HP. Dr. (Mrs.) Usha Sharma.

3. Singh, Atul Kumar. *Functioning of trade unions in U.P. State Govt. manufacturing enterprises.* BHU. Dr. Nageswar Rao.

4. Srivastava, Ravi. *Executive development programmes in banks : A case study of S.B.I.* BHU. Dr. H.C. Chaudhary.

HUMANITIES

Fine Arts

1. Singh, Ashok Kumar. *Bharat mein vigyapan agencies ka udbhav aur vikas.* BHU. Prof. P.B. Lall.

2. Singh, Rakesh. *Saraswati avadharna aur pratibha.* BHU. Dr. Balramji Srivastava.

3. Singh, Shyam Lal. *Folk art of Uttar Pradesh.* BHU. Sri. D.N. Das Gupta.

4. Tiwari, Rang Nath. *Bihar kee lok kala.* BHU. Prof. R. Das Gupta.

Plastic Arts

1. Gaur, Niketan Anand. *Comparative study of technique of metal casting of U.P., Bihar, Bengal, Orissa and M.P.* BHU. Shri Pandey Chandra Vinod.

2. Rai, Akhilesh Kumar. *Survey of the constitution of Lokmurti of M.P., U.P., Bihar, Bengal and comparative study of their techniques.* BHU. Shri. D.P. Singh.

Drawing and Painting

1. Shahla Naz. *Being the restriction on the art in the muslim religion, paint and the development of painting.* BHU. Dr. D. Banerjee.

2. Singh, Asha. *Uttar Bharat mein vyakti chitran (Painting).* BHU. Dr. Kusum Das and Dr. B. Srivastava.

Music

1. Gopal Shanker. *Bhartiya sangeet mein gyan tatha vadan ka paraspar prabhav.* BHU. Dr. (Mrs.) P. Basu.

2. Sangeeta, S. *A critical study of the musical text-sangeet shromani.* BHU. Dr. R.D. Chakravarty and Dr. (Mrs.) V. Musalgaonkar.

3. Srinivasan, R.K. *Uttar Bharatiya (Hindustani) evam Dakshin Bharatiya (Karnataka) sangeet shailley ke bansi vadan mein gayaki ang ka adhyayan.* BHU. Dr. (Mrs.) Pushpa Basu.

Language and Literature

English

1. Bishnoi, Maitreyee. *The women, family and the Jewish pattern in Saul Bellow's fiction.* Devi Ahilya. Dr. R.K. Sharma.

2. Chaturvedi, Nagesh. *The novels of Salman Rushdie: Critical study.* BHU. Prof. D.P. Mathur.

3. Dasgupta, Rina. *Wole Soyinka: A study of his mind and art as a playwright.* BHU. Dr. M.K. Chaudhury.

4. Ghosh, Monisha. *The theme of Aliendation in Indian English fiction.* BHU. Dr. S.R. Jalote.

5. Kapoor, Rani. *Exposition of tragic vision in the plays of Tennesse Williams.* Devi Ahilya. Prof. R.N. Sharma.

6. Kullur, Nagappa Siddappa. *Tennesse Williams and Vijay Tendular : A study in literary influence.* Shivaji. Dr. P.R. Kher.

7. Ojha, Shruti. *Modern poetic drama and its plays of W.H. Auden.* BHU. Dr. R.N. Rai.

8. Porwal, Rajiv. *Charles Tomlinson: A study of his poetic.* BHU. Dr. R.K. Shukla.

9. Saini, Kamlesh. *Stephen Crane: Theme and inner significance of his fictional writing.* Devi Ahilya. Dr. R.K. Sharma.

10. Saksena, Poonam. *The poetry of confession in the nineteen sixtees.* BHU. Dr. Alaka Nigam.

11. Shukla, Harish Chandra. *The plays of John Osborne.* BHU. Dr. R.K. Shukla.

12. Shukla, Mangala Prasad. *William Cowper: A study of his poetry.* BHU. Dr. N.K. Lal.

13. Sinha, Arvind. *The tragic vision of J.M. Synge.* BHU. Prof. G.B. Thampi.

14. Srivastava, Pravin Kumar. *The images of disillusionment in contemporary British poetry.* BHU. Dr. O.P. Mathur and Dr. R.S. Sharma.

15. Tripathi, Sarvesh Dutt. *Realism in the plays of Thorton Wilder.* BHU. Dr. N. Siddiqui.

16. Verma, Deena Rani. *The problem of identity in Indian English fiction.* BHU. Dr. S.R. Jalote.

Drawing and Painting

French

1. Muthalali, Preeta K.J. *Methodologie pour L'enseignement da Ia civilisation dons I'apprentiseage D'une langue entrangere, phase preminaris: Decouverte par I'etudisnt de son propre milieu culturel (dans le cas present, il s' agira dong de faire decouvrir a l'etudiant benares sous des aspects socio-culturels divers.* BHU. Prof. Prabhakar Jha.

Sanskrit

1. Chaube, Lalit Kumar. *Geetaya sankhyayogi.* BHU. Dr. S.S. Shastri.

2. Dwivedi, Lal Bahadur. *Kshyadhimasyon: Dharamshastra drishtya sameekshan.* BHU. Dr. S.N. Upadhyay.

3. Gangopadhyay, Shiv Ram. *Shri Shridhar krite nyaya kandali sameekshnam.* BHU. Dr. T. Sharma.

4. Khandelwal, Mohanlal. *Shri Praversen virkti Setulandh Mahakavya ka bhasha shastriya adhyayan.* Devi Ahilya. Dr. B.D. Musalgaonkar.

5. Malaviya, Anjalika. *Sanskrit rupakon aur up-rupakon kee itibritti-sanrachana ka sameekshatmak adhyayan.* BHU. Dr. Ramayan Prasad Dwivedi.

6. Mishra, Gopal. *Jyotishshastre yantranam sameekshanam.* BHU. Dr. R.C. Pandey.

7. Mishra, Harendra Kumar. *Bhartiya darshan ke kal tattva kee avadharna.* BHU. Dr. Surya Prakash Jain.

8. Mohanakumar, K. *Bhagavata champu of Ramapanivada: A study.* Kerala. Dr. P. Visalakshy.

9. Musalgaonkar, Nalini. *Saundraya lahiri: Ek tatvik vivechan.* Devi Ahilya. Dr. L.N. Shukla.

10. Pahari, Laxmi Kant. *Mahabharat bhakti tattva sameekshanam.* BHU. Dr. T. Sharma.

11. Shukal, Om Prakash. *Devi Bhagvat ka alochanatmak adhyayan.* BHU. Dr. R.S. Tripathi.

12. Tewari, Hari Narayan. *Nageshbhattmatanusaren, Subarth vivechan.* BHU. Prof. Sitaram Shastri.

13. Tewari, Kamlesh. *Jyotish dharmshastradrishtya vividh sanskarne sameekshan.* BHU. Dr. S.N. Pandey.

14. Tewari, Sidheshwar. *Panineritt: Ek varnanam vimarsh.* BHU. Prof. Sita Ram Shastri.

15. Upadhyay, Kripa Narayan. *Panine Radhikarati desh sutranam parisheelanam.* BHU. Pt. Ramadhin Chaturvedi.

16. Vimala Bhai, B. *Manavikrama mahipala Charitam: Edition and study.* Kerala. Dr. K. Visweswari Amma.

17. Vyas, Mahendra Kumar. *Swadheenta poorva rashtriya chetna mein sanskrit sahitya ka yogdan, san 1857 se 1947 tak.* Devi Ahilya. Dr. L.N. Shukla.

Pali

1. Buddhi, Ashin Gambhira. *Nirodha samapatti in abhidhamme pitaka.* BHU. Dr. H.S. Shukla.

2. Jain, Panne Lal. *Baudh aur Jain sahitya mein varnit pramukh vyaktiyon ka samalochnatmak adhyayan.* BHU. Dr. K.C. Jain.

3. Pandeya, Radha Kant. *Paintastadhyayi evam kacchayan vyakaran ka tulnatmak adhyayan.* BHU. Dr. H.S. Shukla.

4. Thero, Oodamgoda Rewatha. *Bauddha dharma mein yoga-sadhana.* BHU. Dr. K.C. Jain.

Hindi

1. Agarwal, Radha. *Kamayani tatha Urvashi mein samya-vaishmya.* Devi Ahilya. Dr. B.P. Virmal.

2. Dubey, Minakshi. *Muktibodh kee pratinidhi kavitayen: Shailly evam arthatatvik saundarya.* BHU. Prof. S.P. Sngh.

3. Jain, Sushma. *Adhunik kaleen Hindi sahityakaron kee jeevanion aur atmkathaon ka anusheelan.* HS Gour. Dr. V.D. Shukla.

4. Kaladins, Premkali. *Sagar Jile ke adhunik sahityik parampara ka anusheelan.* HS Gour. Dr. V.P. Tewari.

5. Lavand, Ganpatrao Dnyandeo. *Dr. Prabhakar Machveji ke upanyason ka sahityak mulyankan.* Shivaji. Dr. V.K. More.

6. Mishra, Vishwanath. *A critical study of some problems of teaching Hindi to foreign students.* BHU. Prof. S.S. Misra.

7. Mourya, Ram Kumar. *Bachchan ke kavya ka samajik evam darshnik vivechan.* Devi Ahilya. Dr. Rajendra Mishra.

8. Pandey, Ashok Kumar. *Sahityik aur sanskritik mulyon kee kasauti per Hindi kee kalatmak filmon ka anuvekshan.* BHU. Dr. Vishwanath Mishra.

9. Pandey, Shashi Prabha. *Brest ke nav natya siddhant evam Bhartiya lok natya parampara: Ek tulnatmak adhyayan.* BHU. Dr. V.N. Tripathi.

10. Pateria, Kirti. *Lalit nibandhon kee parampara mein Vidya Nivas Mishra, Kuber Nath Ram aur Viveki Rai kee nibandh kala ka tulnatmak ankalan.* HS Gour. Dr. R.D. Mishra.

11. Pathak, Amita. *Saundarya bodh aur Acharya Hazari Prasad Dwivedi.* BHU. Prof. S.P. Singh.

12. Pathak, Archana. *Padmavat ka vastutatva.* BHU. Dr. Shyam Sunder Shukla.

13. Patil, Y.N. *Swargiya Jagannath Prasad 'Milind': Vyaktitva evam krititva.* Shivaji. Dr. G.R. Kulkarni.

14. Silakari, Krishna Behari. *Acharya Hazari Prasad Dwivedi ke upanyas sahitya mein chitrit manav mulyon ka anusheelan.* HS Gour. Dr. H.P. Singh.

15. Singh, Chandradas. *Hindi pragativadi kavya ke sandarbh mein Nagarjuna aur Trilochan kee kavita ka vishesh adhyayan.* HS Gour. Prof. Premshankar.

16. Singh, Ramesh Kumar. *Hindi navjagarana aur Shri Maithili Sharan Gupta.* BHU. Dr. M.N. Rai.

17. Singh, Shraddha. *Hindi ke asampradayik Krishna bhakt pramukh kavi.* BHU. Prof. Tribhuwan Singh.

18. Tikker, Sandhya. *Bundelkhand kee rashtriya kavya dhara mein Shri Prabhakar Balkrishan Prem ke vyaktitva evam krititva ka anusheelan.* HS Gour. Dr. Balbhadra Tewari.

19. Tiwari, Kalpana. *Hindi anchalik upanyason ke sandarbh mein Fanishwar Nath Renu ke nari patra: Ek anusheelan.* HS Gour. Dr. H.P. Singh.

20. Tripathi, Mithilesh Kumar. *Manas kee adhyatmik bhumika.* BHU. Dr. S.N. Dwivedi.

21. Verma, Narayan Ji. *Sahitya Lahiri: Ek shastriya vishleshan.* BHU. Dr. S.N. Dwivedi.

Urdu

1. Ajaz Ahmad. *Tareef Lucknawi: Hayat aur karname.* BHU. Dr. Qamar Jahan.

2. Ansari, Akhtar Sayeed. *Urdu adabki tarraqqu mein Jaunpur ka kissa.* BHU. Dr. Haneef Naqavi.

3. Ansari, Hadees. *Molvi Mahesh Prasad: Hayat aur karname.* BHU. Dr. Zafar Ahmad.

4. Bakht, Mina. *Urdu adab kee taraqqi mein Allahabad ka hissa.* BHU. Dr. Rasheeda Khatoon.

5. Khan, Mohammad Sagheer Alam. *Jiger Biswari: Hayat aur karname.* BHU. Dr. H.C. Nayyar.

6. Khan, Shakila. *Josh Malihabadi Hajat Seerat aur shaeri.* HS Gour. Dr. M.S. Siddiqui.

7. Mohammad Jan. *Tarhan-kalam-a-iqbal.* BHU. Dr. Zafar Ahmad.

8. Noorul Hasan. *Asar Lucknawi: Hayat aur karrname.* BHU. Dr. H.C. Nayyar.

9. Rasool Fatma. *Agha Nashr Kashmiri.* BHU. Dr. Rasheeda Khatoon.

10. Siddiqui, Hajra Khatoon. *Rashidul Khairi: Hayat aur karnamen.* HS Gour. Dr. M.S. Siddiqui.

Nepali

1. Sharma, Gargi Devi. *Swachhandatavadi Nepali kavita mein prakriti: Sanvat* 1991-2016. BHU. Dr. D.R. Timsine.

Persian

1. Anis Ahmad. *Persian poetry of the reputed Urdu poets.* BHU. Prof. (Dr.) A.L. Ishrat.

2. Syed Qamrul Hasan. *Azadi ke bad Hindustan kee Farsi shairi, 1947 se 1987 tak.* BHU. Dr. S.A.H. Jafaree.

Arabic

1. Bushra, Syeda. *Social unrest under the Abbasida in 3rd century A.H. as depicted in early Arabic literature.* BHU. Dr. I.R. Rizvi.

2. Khan, Abu Hatim. *Nawab Siddiq Hasan : His life and works.* BHU. Dr. Imran Raza.

3. Rahman, Syed Ahsanur. *Hazrat Ali Ibna abi Talib A.A. his religious and political activities as they are reflected in his sermons.* BHU. Dr. I.R. Rizvi.

Malayalam

1. Geethakumari, S. *Critical edition and study of Sankara samhita kilipattu.* Kerala. Dr. P.K. Sumathy Kutty.

2. Johnson, V.I. *Professor Joseph Mundasseriyude Saahityaniroopanthinte saamoohikaprasakthi.* Kerala. Dr. D. Benjamin.

3. Rajeev, V. *Girijakalyanam: A critical edition and study.* Kerala. Dr. N. Sam.

4. Sanalkumaran Thampi, V.K. *Contributions of Pachumoothathu to Malayalam literature.* Kerala. Dr. K. Appukuttan Nair.

5. Sukumaran Nair, K. *Children's literature in Malayalam: A thematic study.* Kerala. Dr. N. Mukundan.

Kannada

1. Mahalingeshwara, S.P. *Labour songs of Kasaragod and Dakshina Kannada area in Kannada : A folkloristic study.* BHU. Prof. V. Shivanand.

Geography

1. Singh, Rakesh Kumar. *Integrated area development of Ghazipur District.* BHU. Dr. B. Dubey.

History

1. Agarwal, Sunil Kumar. *Madhya Bharat kee kala: Ek sanskritik adhyayan.* BHU. Dr. P.K. Agrawala.

2. Bal Mukund. *Bharatiya samajik sanrachana mein Grihastha Asharam.* BHU. Dr. T.P. Verma.

3. Joshi, Aparna. *Manu and the Nanva school.* BHU. Dr. P.C. Pant.

4. Mane, C.B. *Karad through the ages.* Shivaji. Dr. A.M. Sutar.

5. Mohammad Shafi. *Anglo-Mughal relations and the decline of trade and commerce of the Bengal merchants at Deccen,* 1650-1714. BHU. Dr. S.C. Mukhopadhyaya.

6. Pathak, Anamika. *Pracheen Bhartiya sahitya aur Kala mein Parwati.* BHU. Dr. (Mrs.) K.K. Gopal.

7. Pathak, Brij Bhushan. *Puranon mein varnita tirtha.* BHU. Dr. Nisar Ahmad.

8. Pathak, Maya. *Shanti parva mein darshanik vichar.* BHU. Dr. (Mrs) K.K. Gopal.

9. Rai, Bansh Narain. *Bhartendu and Indian nationalism.* BHU. Dr. A.S. Singh.

10. Rai, Vyankateshwar. *Maha kavyon (Ramayan-Bharat) mein sheriri siksha ka swaroop.* BHU. Dr. P.K. Agrawal.

11. Shipra. *Urban economic life in the Sultnat period,* 1206-1414. BHU. Dr. (Mrs.) S. Chatterjee.

12. Srivastava, Poonam. *Historical study of Sri Vaisnavism as cleaned from Divyasuriceritam of Garudavahana Pandita, 12th to 15th century A.D.* BHU. Prof. V.C. Srivastava.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Akhtar, Jamal. *The self dilemma of the handicapped.* Rajasthan.

2. Gupta, Anita. *A study of the effects of trait anxiety, psychological stress and intelligence on state anxiety and performance.* HP.

Sociology

1. Bose, Amita. *Social impact of some chronic diseases : A sociological study of Delhi population.* IIT, Delhi.

2. Chakrabarti, Amitabha. *The problems of the physically handicapped in West Bengal with special reference to the blind.* Calcutta.

3. Choubey, Ajay. *Bachara Jati ka samaj shastriya adhyayan: Ratlam Jile ke vishesh sandarbh mein.* Bhopal.

4. Chowdhary, Rina. *Explorations in role analysis of nurses: A sociological study in a hospital setting.* Panjab.

5. Durgaprasad, P. *Cooperative dairying and rural development: A case study of a village in Guntur, District, A.P.* Patel.

6. Guruswamy, P.A. *Agrarian structure and peasant movements in Coimbatore District.* Panjab.

7. Jain, Neelima. *Behavioural dimensions of population education and sex education: A comparative study of youth in Panjab. and Himachal Pradesh Universities.* Panjab.

8. Kiran Preet Kaur. *Correlates of commitment and professionalization: A study of managers in industrial organizations.* Panjab.

9. Murali Reddy, B. *A critical study of Andhra Satavahanas in Malwa.* Vikram.

10. Patel, Manubhai Fulabhai. *Rajpur: A sociological study of a merged village in Gujarat State.* Patel.

11. Rajaram, N. *Cooperatives and social structure: A sociological analysis of village milk cooperatives in Kheda District, Gujarat.* JNU.

12. Rangarajan, C.S. *The worker and the bureaucratic structure in industry.* Karnatak.

Social Anthropology

1. Dubey, Vandana. *Satna Cement Factory ke majdooron ka samaj shastriya adhyayan.* HS Gour.

2. Laxaman, Ainapur Vinoda. *Position of women in an Indian fringe village.* Karnatak.

Social Work

1. Eswari, S. Chamundi. *Adjustment patterns of the women hysterical patients with their family members: A social work perspective.* Bangalore.

2. Indiramma, V. *A study of family interaction of neurotic children attending Child Guidance Clinic, NIMHANS, Bangalore.* Bangalore.

3. Mahapatra, Prafulla Chandra. *A critical study of the impact of National Service Scheme on the attitude of college students.* Jamia.

4. Muralidhar, D. *Rehabilitative potentials in the families of mentally ill.* Bangalore.

Political Science

1. Ansari, Nafees Ahmad. *Muslim voluntary institutions: Context of modernization.* Meerut.

2. Deora, S.S. *Indian Ocean in the contemporary maritime strategy.* JNU.

3. Diwan, Mohan N. *The role of public corporations in the development and functioning of welfare state with special reference to India.* Nagpur.

4. Meera. *Bharatiya Samvidhan aur udarvad.* BHU.

5. Pandey, Aditya Prakash. *A critical study of causes of delay in justice : Case study of Bhopal Division Court.* Bhopal.

6. Ranjan Kumar. 1921 *se 1947 ke beech Congress Party kee Fatehpur mein chetna ke vikas mein bhoomika.* Avadh.

7. Renu. *Position and politicization of women in social life of District Muzaffarnagar of Uttar Pradesh: A study.* Meerut.

Economics

1. Agarwal, Lata. *Indo-Bulgarian trade and economic relations since* 1953. Rajasthan.

2. Ashok Kumar. *Economic development and price behaviour in India since* 1951. Meerut.

3. Basu, Arati. *Surplus labour and economic development: An enquiry into the problems of disguised unemployment in the context of Indian economy.* Jamia.

4. Bhargava, Pradeep. *Import substitution and growth, a study in policy economy : Case study of Sri Lanka.* Rajasthan.

5. Chauhan, Sudershan Kumar. *An economic analysis of Liverstock farming in tribal areas: A study of Bharmaur Tehsil of Chamba District.* HP Krishi.

6. Devaki Devi, Povvada. *Leadership and democracy among the trade unions. A comparative study.* Andhra.

7. Hooda, Bishan Singh. *Cooperative consumer's in Haryana.* Meerut.

8. Mohammad Makbul Hossain. *Dimensions of land reform in Bangladesh.* Calcutta.

9. Nautiyal, Kailash Chander. *Economics of rural education in Western Uttar Pradesh.* Meerut.

10. Sarma, Prabin Kumar. *Role of forest resources on the economy of Assam.* Dibrugarh.

11. Seghal, Inderjit Singh. *Wage productivity, relationship in the paper mill industry in Northern India with special reference to Punjab, Haryana and Uttar Pradesh.* Meerut.

12. Sundara Rao, Mopidevi. *Trends and determinants of India's foreign trade,* 1962-1979. Andhra.

13. Vijay Rani. *Farm credit and agricultural development in Uttar Pradesh with special reference to the cooperative credit.* Meerut.

Law

1. Abdul Hamid. *Philosophy of Justice M. Haidayattullah on certain aspects of the Constitution.* Rajasthan.

Public Administration

1. Trivedi, K.D. *Scientists : Organisational behaviour of agricultural scientists in Rajasthan.* Rajasthan.

Military Science

1. Grewal, R.S. *Power balance in South Atlantic, The Falklands : A case study.* Meerut.

2. Pandey, Bhoodeshwar. *Prachin Bharatiya bhoudhik guptachar vyavastha evam vivechan.* Avadh.

3. Tewari, Om Prakash. *Bharatiya nabhsena evam rashtriya suraksha.* Avadh.

Education

1. Akhtar Hashmi, Masroor Ali. *A critical study of educational movements and institutions with special reference to Darul Uloom, Deoband, Aligarh Muslim University, Aligarh, Nadwatul Ulama, Lucknow and Jamia Millia Islamia, Delhi.* Jamia.

2. Balvinder Kaur. *Job-satisfaction of home science teachers: Its relationship with personal professional and organizational characteristics.* Panjab.

3. Jameel Sultana. *Influence of Islam on women: An educational perspective.* Osmania.

4. Khan, Gorachand. *Wastage and stagnation in schools in the rural areas of West Bengal: A sociological study.* NBU.

5. Kothikhane, Rajeshwar Ramchandrarao. *A study of the technological gap in irrigated farming system under Purna Command Area, Maharashtra State.* Marathwada Krishi.

6. Mistry, Narendrakumar Shantilal. *An investigation into class-room climate of secondary school in the context of cognitive attitudinal and behavioural characteristics of pupils.* Patel.

7. Rao, R.V. *A study of interrelationship of values, adjustment and teaching attitude of pupil teachers at various levels of socio-economic status.* Avadh.

8. Siddiqui, Najma Nasim. *Development of a sample-self-learning material for senior secondary Biology and analysis of its effectiveness.* Jamia.

9. Singh, Narendra Pratap. *Frustration amongst youth: A study of the college of Faizabad Division.* Avadh.

10. Thayaru, Parimi Manga. *Standardization of Parimi's tests of creative ability in Mathematics for secondary school students.* Osmania.

Commerce

1. Aravindakshan, K. *A study of tile industry in Kerala with special reference to Trichur District.* Calicut.

2. Dhooper, Nand Kishore. *Strategy for effective corporate tax planning : An analytical study of tax incentives for the corporate sector.* Meerut.

3. Gupta, Laxman Prasad. *Life Insurance business in M.P.* HS Gour.

4. Gupta, Ramesh Kumar. *Analysis of financial statements of bal bearing industry in India.* Rajasthan.

5. Man Mohan. *Role of commercial banking in rural development of India since nationalisation.* Meerut.

6. Mishra, Kamala Kant. *A critical study of the working of Uttar Pradesh Financial Corporation.* BHU.

7. Sharma, Ram Prakash. *Analysis of financial structure of automobile industry in India.* Rajasthan.

8. Surinder Bir Singh. *Project planning and appraisal in Panjab: A study of projects of Panjab State Industrial Development Corporation.* Panjab.

Home Science

1. Sharma, G.D. *Chemical analysis and nutritional assessment of protein in low cost balanced diets.* Bhopal.

Management

1. Antony, G. *Structure of marketing channels of selected manufacturing industries in Kerala.* CUST.

2. Harikumaran Nayar, K.B. *Management of the postal services in India : A study with reference to Kerala circle.* CUST.

3. Jindal, Surendra Kumar. *Working capital management in scooter manufacturing companies in India.* Rajasthan.

4. Joshi, Vinod Kumar. *Management of sick industrial units in Rajasthan with special reference to assistance rendered by Rajasthan Financial Corporation.* Rajasthan.

5. Nigam, Sudha. *Financial appraisal at the air corporations of India.* Rajasthan.

6. Yadav, S.R. *Factors related to leadership styles and effectiveness : A study on middle level managers in public sector undertakings.* IIT, Delhi.

CLASSIFIED ADVERTISEMENTS

TATA INSTITUTE OF SOCIAL SCIENCES

Deonar, Post Box No. 8313
Bombay-400 088

Dated : February 12, 1987

Applications are invited for the following posts. The prescribed application form along with the details of qualification, experience, etc. should be obtained from the above address either in person or by post along with a stamped (Rs. 1.50) self-addressed envelope superscribed "REQUEST FOR APPLICATION FORM FOR TEACHING POSTS".

I. Reader in the Unit for Research and Consultancy in Social Policy and Social Welfare Administration (One post) in the scale of pay Rs. 1200-50-1300-60-1900 + D.A. and other allowances. The total emoluments in the minimum of the scale is Rs. 3075.35 per month, and in the maximum Rs. 4172.35 per month.

II. Lecturers (3 posts) **(Reserved for SC/ST candidates)** : One in the Department of Urban and Rural Community Development is reserved for ST Candidates, One in the Department of Medical and Psychiatric Social Work and One in the Research Unit for Research and Consultancy in Social Policy and Social Welfare Administration are reserved for SC candidates, in the scale of pay Rs. 700-40-1100-50-1600 + D.A. and other allowances. The total emoluments in the minimum of the scale is Rs. 2124.00 per month and in the maximum Rs. 3575.35 per month.

III. Reader, NSS Unit (One post) (Temporary but likely to continue indefinitely unless the scheme is abolished by the Government of India) in the scale of pay Rs. 1200-50-1300-60-1900 + D.A. and other allowances. The total emoluments in the minimum of the scale is Rs. 3075.35 per month and in the maximum Rs. 4172.35 per month. Though the post is temporary, the person selected will be admitted to the Contributory Provident Fund Scheme of the Institute after one year.

IV. Psychiatric Social Worker (One post) for Child Guidance Clinic of the Institute in the scale of pay Rs. 500-20-700-25-900 + D.A. and other allowances. Total emoluments in the minimum of the scale Rs. 1064.15 per month and maximum Rs. 2664.35 per month.

The last date for request for application form : **10-03-1987**. Application made in plain paper will be rejected.

N. Krishnamoorthy
REGISTRAR

INDIAN COUNCIL OF MEDICAL RESEARCH

Applications are invited upto **31st March, 1987** for the post of Deputy Director (Bacteriology) in the scale of pay of Rs. 1500-60-1800-100-2000 (pre-revised) at Tuberculosis Research Centre, Madras.

Qualifications and Experience : Essential : M.D./Ph.D./D.Sc. in microbiology with atleast 15 years teaching/research experience in Microbiology. Preference will be given to the candidates possessing research experience in tuberculosis or leprosy.

Age : Below 50 years. Upper age relaxable by 5 years in case of SC/ST candidates.

General Relaxation Clause : Age limits, qualifications and experience prescribed above are relaxable in deserving cases including SC and ST candidates.

Benefits of pension admissible. Private practice is not allowed. However, non-practising allowance is admissible to medical graduates only as per rules of the Council. Candidates called for personal discussion including SC and ST candidates will be paid rail fare as per rules of the Council.

Application forms and other details are obtainable from the office of the Director General, Indian Council of Medical Research, Post Box No. 4508, Ansari Nagar, New Delhi - 110029 to whom the complete application forms should be sent accompanied with postal order of Rs. 8/- (No fee for SC and ST candidates) made out in the name of Director General, Indian Council of Medical Research, New Delhi. The name of the post and other Institute must be indicated in the application. Incomplete applications will not be entertained.

CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY AND EXAMINATIONS

Applications are invited from College/University teachers for admission to Correspondence Courses in Evaluation Methodology and Examinations at Basic Level, Intermediate Level and Advanced Level/Special Professional Course. The duration of each of the three courses is six months. A personal 'Contact Programme' for three days is planned for each of the three courses. Universities/Institutions sponsoring candidates can meet the registration/course fees from out of unassigned grants by UGC.

Request for prospectus and application form accompanied by a crossed Indian Postal Order for Rs. 10/- drawn in favour of the Secretary, Association of Indian Universities and a self addressed stamped envelope (Re. 1/-) should reach the undersigned. Last date for receipt of application is **15th March** for non-sponsored and **26th March, 1987** for sponsored candidates.

Project Director (Exam.)
Association of Indian Universities,
AIU House, 16 Kotla Marg,
New Delhi - 110002

TATA INSTITUTE OF SOCIAL SCIENCES

(Institution Deemed to be University)

Post Box No. 8313, Deonar
Bombay 400 088

Dated : January 21, 1987

Admission Announcement for 1987-88
Post Graduate Programme (Full Time)

1. Master's Degree in Social Work with specialisation in Criminology and Correctional Administration/Family and Child Welfare/Medical and Psychiatric Social Work/Urban and Rural Community Development.

Eligibility : A Bachelor's (3 years or 2 years and 1 year bridge course under 10+2+3 stream) or Master's degree in any faculty with an overall average of 45% of the marks or equivalent.

2. Master's Degree in Personnel Management and Industrial Relations: A Bachelor's (3 years or 2 years and 1 year bridge course under 10+2+3 stream) or Master's degree in (i) Arts/Commerce with an overall average of 50% of the marks or (ii) in Science with an overall average of 55% of the marks. Candidates who complete their Bachelor's degree examination (under the 10+2+3 stream) in full including practicals by June 8, 1987, are also eligible to apply subject to obtaining the same percentage of marks in 1st and IInd years (together) University/College examinations.

NO CORRESPONDENCE COURSES ARE OFFERED. Brochure and application form available on sending Bank Demand Draft for Rs. 20/- superscribed on the cover "Request for Application Forms for Admission".

Last Dates : Requests for brochure and form by post: **May 21, in person: June 1,** completed applications: **June 1.**

SPECIAL PROVISION FOR SCHEDULED CASTES/TRIBES CANDIDATES (SC/ST) : Reservation of seats for SC(15%) and ST(7½%). Only for those not employed and appearing for test for the first time, travelling allowance reimbursed, free meals and hostel provided during tests.

Candidates in remote areas/villages may apply immediately and keep copies marks/grade cards, testimonials and 2 passport-sized photographs ready to send them to reach the institute by **May 25th**, with completed forms.

Hostels : Limited seats.

A few scholarships and stipends available for Indian nationals only.

The Institute reopens on Monday, June 22, 1987.

N. Krishnamoorthy
REGISTRAR

SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING

(Deemed University)

Vidya Giri, Prasanthinilayam-515 134 (A.P.)

The Institute invites applications for positions at the level of Professor, Readers and Lecturers in the Faculty of Business Management in the following areas:

1. Behavioural Science
2. Personnel and Industrial Relations.
3. Management and Information Systems
4. Information Technology
5. Marketing Management.
6. Financial Management and International Finance
7. Business Policy and Organisation Development.

Qualifications will be same as laid down by the University Grants Commission.

Interested candidates may write to the Registrar within 20 days of advertisement for prescribed application forms.

Selected persons will be eligible for UGC scales of pay and be governed by the allowances and other benefits including the Contributory Provident Fund-cum-Gratuity Scheme of the Institute.

K. Chakravarthi
REGISTRAR

ASSOCIATION OF INDIAN UNIVERSITIES

AIU HOUSE, 16 KOTLA MARG, NEW DELHI-110002

Applications from Indian citizens for the following posts are invited in the prescribed form available on payment of Rs. 2/- from the Office of the Association of Indian Universities, 16 Kotla Marg, New Delhi-110002.

1. **Research Officer : (One) : Scale Rs. 1100-1600.**

   A first class post-graduate in Sciences, Mathematics or Statistics with atleast five years experience of research in the area of examinations in colleges/universities.

   Desirable : Good knowledge of computer applications with experience in computerisation of examinations and university administration.

2. **Research Officer : (One) : Scale Rs. 700-1300 (Temporary).**

   Candidates should have first or high second class Master's degree in Economics or in Social Sciences with at least 5 years' experience in educational research. Preference will be given to candidates in the area of Economics of Education.

3. **Research Associate**: (Two) : Consolidated salary of Rs. 2000/- p.m. Project posts, temporary for one year.
   Candidates must have good academic record with 1st or high 2nd Class Master's degree in Education or Social Sciences and should have done independent work in the field of Economics of Education.

4. **Research Assistant : (One) Revised Scale Rs. 1400-40-1800-EB-50-2300.**
   Candidates should have first or second class Master's degree in Social Sciences preferably in Economics with atleast 2 years experience in educational research. Candidates having Mathematics/Statistics/Economics at graduate level as optional subject will be preferred.

5. **Junior Steno : (Two) : Project posts, temporary for one year.**
   Higher Secondary with a minimum speed of 80/40 w.p.m. in Shorthand/typing. Consolidated salary Rs. 1200/- p.m.
   Desirable : Atleast two years experience in a reputed organisation.

For posts at Sl. No. 1 and 2 revised Govt. of India scales will be available as and when Govt. orders are issued.

All posts (except project posts) carry usual allowances generally at the Central Govt. rates. Relaxation in any of the requirements may be made in exceptional cases. The Association reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant. Canvassing in any form by or on behalf of a candidate will be a disqualification.

Applications complete in all respects should reach the office by **9th March, 1987.** Applications received after the last date or without complete information may not be entertained. SC/ST/Ex-servicemen will be given preference.

S.V. REGIONAL COLLEGE OF ENGG. AND TECH.

SURAT

No. MANITI/SURAT/184/87

Applications on plain paper with full biodata are invited from candidates having 1st class in M.Sc. (Physics/Applied Physics) for a post of Junior Research Fellowship of Rs. 1000/- P.M. under DAE project on Magnetic Fluid Seals. Application should be submitted to the Head of Physics Department, S.V. Regional College of Engg. and Tech., Surat, on or before **20th March, 1987.**

UNIVERSITY OF KERALA

University Buildings, Trivandrum

No. Ad. A1.1.62/87 Dated : 9.2.1987

Notification

Applications are invited for appointment to the post of Controller of Examinations on Rs. 2450-100-2850-125-3600 in the University of Kerala. The post will be treated as 'Open'.

Qualifications

1. A First or Second Class Master's Degree or equivalent Qualification.
2. About 5 years teaching experience at University level; and
3. About 5 years Administrative Experience in a responsible post including management of Staff in a University or College or Education Department or similar institutions.

Age : Not less than 40 years and not more than 50 years, but relaxable in the case of those in University service.

Academic qualifications, age, and experience are relaxable in the case of candidates otherwise highly qualified.

Copies of application forms can be had from the University Office, Trivandrum on production of challan receipt/pay-in-slip for Rs. 2/- remitted to K.U.F. account in the Treasury/State Bank of Travancore (in the case of persons residing inside the State) or on payment of the amount by Crossed Postal Order (in the case of persons outside the State only) payable to the Finance Officer, University of Kerala, Trivandrum. The request for application forms should be addressed to the Deputy Registrar (Administration), University Office, Trivandrum.

Applications in the prescribed form should reach this office on or before **12-3-1987.**

S.K. Rajagopal
REGISTRAR

INDIAN INSTITUTE OF SCIENCE

BANGALORE - 560 012.

FACULTY POSITIONS

I. Senior Scientific Officer in the Project National Infrastructural Facility on Animal House Facility sponsored by National Biotechnology Board, Dept. of Science and Technology, Govt. of India. (No. IA/308-5/87)

Ph.D. in Biological Sciences/MD/MVSc with a minimum of 3 years experience in animal husbandry preferably of primates with publication record equivalent to Ph.D. Research experience with publications to the credit desirable.

The tenure of appointment is upto 31-3-1991.

II- Lecturer in the Centre for Ecological Sciences. (No. IA/308-6/87) Ph.D. in Physical or Mathematical Sciences based on research relating to mathematical modelling of biological phenomena. Sound record of publications in the field of mathematical biology or biostatistics is essential. The candidate should be well versed in statistical methods and computer programming. Experience of research in the areas of ecology, evolutionary biology and behaviour would be an additional advantage.

The post reserved for Scheduled Caste was advertised in December 1986. Since no SC candidates had applied, the post is dereserved now and re-advertised. Applications are invited from general candidates also.

Emoluments : For post 1 — Rs. 2,965 p.m. (approx.) in the scale Rs. 1100-1600; and post II — Rs. 2,123 p.m. (approx.) in the scale Rs. 700-1600.

Details and prescribed application forms can be obtained on request (separate for each post) accompanied by crossed IPO for Rs. 5/- drawn in favour of Registrar, Indian Institute of Science (SC/ST exempted on production of Caste certificate from a competent authority) and a self-addressed Rs. 5.40 stamped envelope of 28 x 18 cms before **9th March 1987.**

REGISTRAR

CENTRAL LEATHER RESEARCH INSTITUTE

(Council of Scientific & Industrial Research)

Advertisement No. 2/87

The Central Leather Research Institute, a national laboratory of CSIR, is the largest research Institution in the world devoted to leather science and technology. Current activities relate: to processes for improved leather manufacture, new chemical auxiliaries for leather processing and finishing, effluent treatment systems, better utilisation of tannery and slaughterhouse wastes and footwear and leather goods research supported by relevant R&D inputs from organic, bio-inorganic and bio-chemistry, microbiology, polymer sciences, chemical engineering and leather technology groups.

The laboratories of CLRI are well equipped with sophisticated instruments as well as a computer centre with latest Computer Aided Design system for leather products design and two Wipro Mini computers are also available for other research applications.

The chemical process pilot plant and pilot tannery are being modernised with the addition of equipments of updated design and a modern pilot plant facility is being created for R&D work on footwear design and fabrication, shoe engineering and quality control and standards.

CLRI proposes to recruit highly talented researchers with proven professional attainments in some of the above areas for the following positions. The R & D activities in the Institute being largely multidisciplinary, the prospective scientists are expected to have the necessary ability and flexibility to work in teams besides being innovative and highly professional.

Category I — Scientific

1. Scientist E.I./E. II — 1 Post (Biotechnology)

Rs. 1500-60-1800-100-2000(GroupIV(3)or
Rs. 1800-100-2000-125/2-2250GroupIV(4)
(To be revised shortly).

Qualifications and Experience : Ph.D. in an area of biochemistry, biophysics, biotechnology, molecular biology or any other related branch of modern biology with atleast 12 years research experience after M.Sc. The candidate should produce evidence of independent work of a high quality such as outstanding publications, academic honours and patents and should be capable of generating new and original research ideas.

Job Requirements : The selected scientist is expected to perform research as well as to lead a research group on biotechnology or biochemistry relevant to leather science and collaborate with researchers of other disciplines in CLRI and outside and promote growth of interdisciplinary programmes.

2. Scientist 'C' — 2 Posts.

Rs. 1100-50-1600 (Group IV (2) (To be revised shortly)

Post 1 — Chemical Engineering

Qualifications and Experience : M. Tech/M.S./M.E. in Chemical engineering with minimum of 4 years of professional experience or Ph.D. in Chemical Engineering with minimum of 2 years experience is essential. Demonstrated ability in chemical process development/polymer reaction engineering/computer aided design and modelling is needed.

Job Requirements : (a) to lead research teams working in the above areas (b) to participate in computer aided design and modelling activities (c) to assist senior scientists in planning and establishing the chemical engineering infrastructural facilities.

Desirable : Adequate knowledge in computer programming in BASIC, FORTRAN IV and other languages and practical knowledge in Process Control Instrumentation.

Post 2 — Microbiology

Qualifications and Experience: First Class M.Sc. preferably a Ph.D. Atleast 6 years experience after M.Sc. in the field of Microbiology or a related branch of biology. Candidate with a good record of original work evidenced by publications in reputed journals, preferably related to leather processing and preservation preferred. R&D experience in biotechnology desirable.

Job Requirements : To assist senior scientists in the planning and execution of R & D projects or biodegradation and biological treatment of tannery effluents for their disposal/utilisation, and leather preservation.

3. Scientist 'B' — 1 Post (Leather Technology)

Rs. 700-40-900-EB-40-1100-50-1300
(Group IV (1) (To be revised shortly)
(For Regional Centre for Extension and Development located at Jalandhar).

Qualifications and Experience : First Class B. Tech with 2 years experience or M. Tech in Leather Technology with some experience and aptitude for practical leather processing and finishing. Experience in sports goods/fur tanning considered as an additional qualification. Knowledge of Hindi/Punjabi desirable.

Job Requirements : The candidate is expected to take up intensive field work and assist the Scientist, Reginal Centre for Extension and Development, Jalandhar in carrying out process demonstrations in commercial tanneries and in providing related technical services.

Category II — Technical

1. Technical Officer 'B' — 1 Post (Leather Product Technology)

Rs. 700-40-900-EB-40-1100-50-1300
(Group III (4) (To be revised shortly).

Qualifications and Experience : A degree in Science with a minimum of 8 years experience in design development and fabrication of leather goods. A good working knowledge in the use of various leathergoods machines and skill to impart training desirable.

Job Requirements : To develop newer designs of leathergoods with improved production techniques and standards and quality control norms for production and assist the Scientist in conducting training courses.

2. Senior Technical Assistant — 1 Post

Rs. 1640-60-2600-EB-75-2900 (Revised Scale) (Group III (2).

Qualifications and Experience : A degree in Chemistry with 5 years experience in the preparation and analysis of chemicals and auxiliaries such as fatliquors, syntans and vegetable tannins used in leather processing.

Job Requirements : To assist the Scientist engaged in the development of chemical auxiliaries.

Desirable : Master's Degree in Chemistry with proven research experience in the above field.

3. Technical Assistant Gr. VIII — 3 Posts

Rs. 1400-40-1800-EB-50-2300 (Revised Scale) (Group III (1)

Posts 1 and 2

Qualifications and Experience : Essential: Degree in Chemistry or Physics.

Desirable : 2-3 years experience in (a) dyeing and finishing of different types of leathers; (b) analysis of industrial effluent tannery waste; (c) operation of Computers and instruments for physical testing.

Job Requirements : To assist Scientists in (a) dyeing and fnishing experiments/analysis and testing of leather for evaluation; (b) chemicals analysis of tannery effluents, polluted soil and biological substances; (c) operating and maintaining computers as well as instruments associated with physical testing.

Post 3

Qualifications and Experience : B.Sc. degree or a 3 years Diploma in Pharmaceutics from recognised Govt. Institutions with experience as a Registered Pharmacist in a reputed hospital or dispensary. Working knowledge of medical and diagnostic instruments such as ECG will be considered as additional qualifications.

Job Requirements : Required to compound and issue medicines according to prescription; to maintain stock record of medicines, aides and appliances and assist the Medical Officer in running the dispensary.

Category III (Administrative)

1. **Hindi Officer — 1 Post**

Rs. 2000-60-2300-EB-75-3200-100-3500 (Revised Scale).

Essential Qualifications and Experience : Master's degree of a recognised University or equivalent in Hindi with English as a subject at the degree level OR Master's degree of a recognised University or equivalen in English with Hindi as a subject at the degree level OR Master's degree of a recognised University or equivalent in any subject with Hindi and English as subjects at the degree level OR Master's degree of recognised University or equivalent in any subject with English medium and Hindi as a subject at the degree level OR Master's degree of a recognised University or equivalent in any subject with Hindi medium and English as a subject at the degree level, **WITH** 5 years' experience of terminological work in Hindi and/or translation work from English to Hindi or vice-versa preferably of technical or scientific literature, OR 5 years' experience of teaching, research, writing or journalism in Hindi.

Desirable : (i) Knwoledge of Sanskrit or a modern Indian Language. (ii) Administrative experience. (iii) Experience of organising Hindi Classes or workshops for noting and drafting. Qualifications are relaxable in case of candidates otherwise well qualified.

Job Requirements : The Hindi Officer will be responsible for ensuring compliance of the Official Language Policy of the Central Government in CLRI, Madras, SERC, Madras, CSIR Complex, Madras, in accordance with the Official Language Act, 1963 as amended uptodate and rules and orders issued by the Central Govt. in this regard.

Age Limit : Not exceeding 35 years (40 years for SC/ST) (Relaxable upto 5 years for Govt. servants).

Stores Assistant Gr. V

Rs. 1400-40-1800-EB-50-2300 (Revised Scale)

Qualifications and Experience : University degree preferably in Science or three years Diploma in Engineering with atleast 2 years experience in the stores of an R & D organisation.

Job Requirements : Stock issue and verification of stores in accordance with the approved system, under the over-all control of Stores Officer.

Age Limit : Not exceeding 28 years and there is no age restriction to CSIR employees.

Category IV

1. **Research Associateship**

Candidates with a Ph.D. degree in any one of the area of sciences/engineering and technology mentioned in para 1 above with an active interest and aptitude for innovative work are eligible for Research Associateship. The upper age limit for RA will normally be 35 years. Applicants for RA positions whose experience and areas of research are related to the current R & D activities of the Institute would be invited to visit the Insitute to present their work at the Insitute colloquium and discuss subjects of mutual interest with senior researchers of the Institute. Selection will be made on the basis of quality of inputs arising out of the discussions.

2. **Senior and Junior Research Fellowship**

The applicants for SRF and JRF positions having a I class M.Sc. in areas mentioned in para 1 above would be asked to appear for a written test and interview at CLRI, Madras at their own cost. Those who have already appeared or appearing at the National CSIR Fellowships are also eligible to apply.

Applicant for SRF should possess a minimum of 2 years research experience after M.Sc. as evidenced by publications in standard journals as an additional academic requirement.

Age Limit : For JRF — 25 years as on **1-4-1987**. This age limit is relaxable by 3 years for applicants with relevant research/training/teaching experience. For SRF— The upper age limit is 30 years as on 1-4-1987 and is relaxable marginally at the discretion of the competent authority in exceptional cases.

Financial assistance : The Fellowship and Associateship positions carry consolidated monthly stipends plus H.R.A. and annual contingency grant as per rules of the CSIR on this subject. The emoluments associated with the fellowships are:

(i) Research Associateship between Rs. 1400/- and Rs. 2000/- p.m. (Allowed annual increments of Rs. 100/- p.m. within the maximum of Rs. 2000/-)

(ii) Senior Research Fellowship : Rs. 950/- p.m.

(iii) Junior Research Fellowship : Rs. 800/- p.m.

Selected candidates are, however, eligible to apply for CSIR fellowships carrying monthly stipened of Rs. 1250/- p.m. for SRF and Rs. 1000/- p.m. for JRF, if they desire.

Test and Interviews : The exact dates for the test and interview during May 1987 will be communicated to all eligible applicants. The selected SRFs/JRFs would undergo an initial training programme in major R & D areas for a period of six weeks to get exposed to research and laboratory methods. Regular research assignments with specific supervisors/guides will be made thereafter.

General Conditions

1. The posts of Scientist E.I./E. II, Scientist C, Scientist B and Technical Officer 'B' are contractual for a period of six years (including the period of probation of two

years) in the first instance and the other posts are temporary. All posts carry usual allowances as admissible under Central Govt. Rules. Higher initial start may be considered for deserving candidates. Total emoluments at the minimum of the grades at present are as follows:

On Rs. 1800/-	Pre-Revised	Rs. 4134-50	To be revised shortly
On Rs. 1500/-		Rs. 3405-30	
On Rs. 1100/-		Rs. 2965-30	
On Rs. 700/-		Rs. 2124-00	
On Rs. 1640/-	Revised	Rs. 2230-60	Revised emoluments
On Rs. 1400/-		Rs. 1751-00	

2. Candidates with engineering qualifications, if so required, are liable to serve in any defence service or post connected with defence of India for a period of not less than 4 years including period spent on training, if any, provided that such a person (a) shall not be required to serve on the above post after expiry of ten years, from the date of appointment and (b) shall not be ordinarily required to serve as aforesaid after attaining the age of 45 years.

3. **Reservations : Scientist 'B'** — The post is reserved for SC candidate. However, if no suitable SC candidate is available, the post will be treated as unreserved and filled from among the General candidates.

Senior Technical Assistant — The post is reserved for ST candidate.

Technical Assistant Gr. VIII — Post 1 and 2 are reserved for ST candidates and Post 2 is reserved for SC candidate.

However, if no suitable ST/SC candidates are available for the above reserved posts of STA and Technical Asst. Gr. VIII, the posts will be treated as unreserved and filled from among the general candidates.

4. A lower standard consistent with efficiency will apply in the case of SC/ST candidates. Candidates belonging to these communities should invariably enclose an attested copy of the caste certificate issued by a competent authority along with their application failing which they will not be entitled to the concession.

5. The number of vacancies mentioned against each category is provisional and may vary at the time of selection. If more approved vacancies with identical job requirements become available at the time of selection, these also can be filled from the candidates who apply in response to this advertisement.

6. Candidates working in Govt./Semi Govt. Offices/Public Sector Undertakings should send their applications through their employers so as to reach the Institute within 15 days from the due date of receipt of applications. Advance copy of the applications will be considered only if the original applications are received through proper channel.

7. The Institute has a system of periodic assessment promotion on merit. For this purpose, Scientific and Technical posts are categorised into 4 groups on the basis of nature of work. Group IV is the top most group meant for scientific staff and commences with Group IV (1) Rs. 700-1300 (to be revised) with scope for promotion from grade to grade upto Group IV (5) — Rs. 2000-125/2-2500 (to be revised) subject to prescribed conditions. Group III is the next lower group meant for technical staff and its lowest grade is Group III (1) (Rs. 1400-2300) with possibility for promotion from grade to grade upto Group III (5) — Rs. 1100-1600 (to be revised) subject to prescribed conditions. Members of Group III possessing M.Sc./B.E. or equivalent qualifications cannot move to Group IV. Their promotion is confined to Group III only.

8. Applications should be submitted for all the 4 categories in the prescribed form obtainable upto **23-3-1987** on request from the Administrative Officer, Central Leather Research Institute, Adyar, Madras-600 020 by sending a self addressed stamped (Re. 1/-) envelope (25 cms x 15 cms) indicating the No. of Advertisement, Category of post and the post applied for. Application, completed in all respects, accompanied by a Crossed Indian Postal Order for Rs. 8/- for Category No. 1 to III and Rs. 2/- for Category IV towards application fee (No application fee for SC/ST candidates), should reach on or before **6-4-1987**. Separate application should be sent for each post applied for, along with the requisite Postal Order. Candidates should send the IPO only with the completed applications.

9. Travelling allowance as admissible under the rules will be paid for the interviewed candidates. SC/ST candidates not employed in Govt./Semi Govt. Organisation/Govt. Undertakings/Corporations etc. will be paid travelling expenses as per rules. While enquiries concerning research activities are welcome, interim enquiries regarding recruitment progress or incomplete applications or request for forms without self-addressed and stamped envelope, will not be considered.

10. Since it is not possible to call all the applicants for interview/test, the applications will be shortlisted for the purpose and the decision of a duly constituted Screening Committee of the Institute will be final in this matter.

"CANVASSING IN ANY FORM AND/OR BRINGING IN ANY INFLUENCE, POLITICAL OR OTHERWISE, WILL BE TREATED AS A DISQUALIFICATION FOR THE POSTS".

INSTITUTE OF CORRESPONDENCE EDUCATION UNIVERSITY OF JAMMU

Admission Notice

Institute imparts instructions through Correspondence in the following courses:-

1. B.A./B. Com. Previous and Final.
2. LL.B. Two Years (Acad.) Course.
3. M.Com. Two Years Course.
4. Certificate Course in Urdu through Hindi Medium.
5. Certificate Course in English Improvement.

(Applications for admission for the above courses for 1987-88 session will be received in July/August, 1987); and

6. **B.Ed. Course**

Last date for receipt of application forms for admission to B.Ed. Course through Correspondence Session (1987-88) is **20th April, 1987.**

Application forms-cum-prospectus for B.Ed. Course can be obtained from the Institute, on all working days on payment of Rs. 8/- at the counter or by remitting Rs. 10/- only by crossed Bank Draft/Postal orders drawn in favour of the Director, Institute of Correspondence Education, University of Jammu, if required by post.

Eligibility

Inservice teachers who have atleast three years teaching experience as full time paid teachers in Govt./recognised Schools/Defence personnel serving in Education Corps. and have passed B.A./B.Sc./B. Com./Agriculture Degree from University of Jammu or any other University recognised equivalent thereto eligible.

Dr. Santokh Ram
DIRECTOR (ICE)

STRUCTURAL ENGINEERING RESEARCH CENTRE

CSIR Campus, TTTI-Taramani P.O., Madras 600 113.

Advertisement No. SE-1/87

Applications are invited from Indian Nationals for the undermentioned posts in the Structural Engineering Research Centre, Madras.

1. Scientist EI — 1 post (Group IV (3)

Scale of Pay : Rs. 1500-60-1800-100-2000 (under revision).

Qualifications and Experience

I Class B.E./with 12 years of Research/Teaching/Design experience or M. Tech./M.E./M.S./Ph.D. with original work as evidenced by patents or publications evidence of leadership with about 10 years of R & D experience.

Job Requirements

The selected candidate will be required to work on problems relating to nonlinear structural analysis, structural dynamics, and computer software development. Candidate having thorough knowledge of advanced structural analysis techniques, numerical methods, and software development, will be preferred. The candidate should be able to undertake independent research projects and lead a team of scientists in the areas mentioned above.

2. Scientist C — 3 posts (Group IV (2))

Scale of Pay : Rs. 1100-50-1600 (under revision).

Qualifications and Experience : (Common to all the posts)

First Class B.E. in Civil Engineering with atleast six years experience or M.E. Structural Engineering with four years experience or Ph.D. in Structural Engineering. Minimum years of experience relaxable in exceptional cases.

Job Requirements

For Post No. 2 (1)

The selected candidate will be required to participate in the project on fatigue analysis of steel structures with application to offshore structures. A good knowledge of theoretical/experimental dynamic/spectral/stochastic analysis of steel structures is necessary. Candidate having experience leading to publications in the area of fatigue analysis of steel offshore structures or experience in dynamic load testing of large structures will be preferred.

For Post No. 2 (ii)

The selected candidate will be required to work on nonlinear dynamic analysis of towers and tower-like structures. He should have a good knowledge of advanced structural analysis and design of steel structures. The selected candidate will be required to assist in the development of computer software. He should also have a good knowledge of numerical methods and Computer programming.

For Post No. 2 (iii)

The selected candidate will be required to participate in the project on development of interactive Computer graphics systems. A good knowledge of advanced structural analysis, computational techniques, computer graphics and computer programming is essential. Candidates having experience in developing Computer-oriented graphics software will be preferred.

3. Junior Technical Assistant — 5 posts (Group III (1))

Scale of Pay : Rs. 1400-40-1800-EB-50-2300.

(i) **One for Tower Testing and Research Station, Pallavaram and one for Electronics and Equipment Maintenance Division (2 Posts)**

Qualifications and Experience

Diploma in Electronics/Instrumentation Engineering of three years' duration or equivalent with about two years experience in operation, maintenance and servicing of sophisticated electronic measuring instruments, sensors data systems and computer peripherals desirable.

Job Requirements

Maintenance and servicing of all electronic equipments, computer systems and associated instruments.

(ii) **For Design Office (1 Post)**

Qualifications and Experience

Diploma in Civil Engineering of three years' duration or equivalent, preferably with structural engineering as an elective subject.

One year experience in a structural design consultancy firm is desirable.

Job Requirements

Preparation of various R.C.C./Steel working drawings in neat free handwriting, ink work, stenciling relating to flow-schematic diagrams, figures, etc., for publications/reports and display; to understand structural design data and sketches and prepare detailed working drawings, capability to handle modern printing and drawing equipment and assist the Section-in-charge in the preparation of drawings for various projects and maintenance of stock registers and drawing office materials.

(iii) **For Heavy Testing Laboraory (2 Posts)**

Qualifications and Experience

For Post No. 1 : Diploma in Civil Engineering of three years' duration or equivalent.

For Post No. 2 : Diploma in Electrical Engineering of three years' duration or equivalent.

Candidates having experience in Heavy Testing Laboratory will be preferred.

Job Requirements (for Post No. 1)

The selected candidate will be required to carry out works related to preparation of specimen for structural testing. He is required to operate and maintain strain, crack-width and deflection measuring equipments, and hydraulic loading system. The incumbent is also required to perform other duties assigned by the authorities.

Job Requirements : (for Post No. 2)

Making arrangements for testing of prototype specimen of concrete, steel, etc., with working knowledge on load, deflection, and strain measuring equipment, operation of hydraulic loading plant, universal testing machines, etc., and has to perform other related duties as may be assigned from time to time.

4. Senior Welder cum-X-ray Technician (one post) (Group III (1);

Scale of Pay : Rs. 1400-40-1800-EB-50-2300.

Qualifications and Experience

Diploma in Mechanical Engineering of three years' duration or equivalent. Knowledge of shop drawings, welding technology. Structural fabrication is essential.

Job Requirements

The selected candidate will be required to carry out welding jobs, inspection and non-destructive testing of metal and welded joints. He should be able to understand, read and interpret shop drawings and sketches and fabricate steel structures with precision for structural testing. He will also be required to operate and maintain X-ray equipment and other apparatus of the Centre. The incumbent is also required to perform other duties assigned to him by the authorities.

5. **House-keeper for Trainees' Hostel (Guest House) (One post)**

Scale of Pay : Rs. 1400-40-1800-EB-50-2300

Qualifications and Experience

Degree in Science or Diploma in Hotel Management or Catering Technology with two years experience in Trainee Hostels/Guest Houses of reputed Government or Semi-Government organisations or Hotels desirable.

Knowledge of local language and Hindi is desirable.

Job Requirements

Maintenance of the Guest House inclusive of allotment of accommodation and all other duties connected therewith.

6. **Junior Translator (Hindi) (one post)**

Scale of Pay : Rs. 1400-40-1800-EB-50-2300.

Qualifications and Experience

Master's degree of a recognised University in Hindi/English with English/Hindi as main subject at degree level.

OR

Master's degree of a recognised University in any subject with Hindi and English as main subjects at degree level.

OR

Master's degree of a recognised University in any subject with Hindi/English medium and English/Hindi as main subject at degree level.

OR

Master's degree in Hindi/English or in any other subject with Hindi/English medium, with English/Hindi as a main subject or as medium of examination at degree level.

OR

Bachelor's degree with Hindi and English as main subjects or either of the two as medium of examination and the other as a main subject plus recognised Diploma Certificate course in translation from Hindi to English and vice versa or two years' experience of translation work from Hindi to English and vice versa in Central/State Government offices, including Government of India undertakings.

Job Requirements

The incumbent will be required to translate official correspondence/Scientific literature from English to Hindi and vice versa. He/she may also be required to do original office work in Hindi.

The merit of the candidates will be judged on the basis of competitive tests in Hindi and English.

General Conditions

Age

28 years as on 10-4-1987 (for posts at Sl. Nos. 3 to 6) (relaxable for Scheduled Caste/Scheduled Tribe/Ex-Servicemen as admissible under the Government of India rules). In the case of other candidates for posts 3 and 4, age is relaxable if they are otherwise found exceptionally suitable.

Reservation

The following posts are reserved for Scheduled Caste/Scheduled Tribe candidates.

Junior Technical Assistant:
2 posts (3(i))
(Tower Testing and Research Station and Electronics and Equipment Maintenance Division) : Scheduled Tribe Community.

Junior Technical Assistant:
1 post (3(ii))
(Design Office) : Scheduled Tribe Community.

Junior Technical Assistant:
1 post (3(iii)) (1)
(Heavy Testing Laboratory) : Scheduled Tribe Community.

Senior Welder-cum-X-ray Technician:
1 post Sl. No. 4.
Scheduled Caste Community.

The posts meant for Scheduled Tribe Community candidates, Scheduled Caste Community candidates will also be considered and the post meant for Scheduled Caste Community candidates, Scheduled Tribe Community candidates will also be considered. The general candidates would, however, be considered only if no suitable Scheduled Caste or Scheduled Tribe candidates, as the case may be, are still available for appointment to the vacancies reserved for them.

IN THE CASE OF SCHEDULED CASTE/SCHEDULED TRIBE CANDIDATES, A LOWER STANDARD OF SUITABILITY CONSISTENT WITH EFFICIENCY OF ADMINISTRATION WILL BE APPLIED.

The number of vacancies specified in each category is likely to vary.

The posts are temporary but likely to continue. They carry besides pay, allowances as admissible under the Central Government rules. The total emoluments at the minimum of the scale for the posts are as follows:

	Rs.
On Rs. 1500 (under revision)	3405.30
On Rs. 1100 (under revision)	2965.30
On Rs. 1400 (revised)	1751-00

Scientific and Technical posts carry the benefits of Rule 30 of CCS (Pension) Rules, 1972.

Application forms can be obtained (free of cost) from the Administrative Officer, Structural Engineering Research Centre, Taramani, Madras-600113, upto **20-3-1987**. Advertisement Number, Name of the post applied for and full address in Block letters must be indicated at the top of the request which should be sent together with self-addressed stamped envelope (Rs. 1.40 p.) of 22 cm x 10 cm for obtaining application form.

Completed application form together with non-refundable application fee of Rs. 8/- in the form of Crossed Indian Postal Order drawn in favour of "IRF-Structural Engineering Research Centre, Madras", should reach not later than **10-4-1987** positively. The candidates belonging to Scheduled Caste/Scheduled Tribe communities are exempted from application fee. Physically handicapped persons are also exempted from application fee **except** for posts at Sl. Nos. 1 and 2 provided a necessary certificate from Government Hospital/Medical Board in support of his/her claim for being handicapped are enclosed with the application form.

Applications should be supported by attested copies of the certificates/testimonials, relating to educational qualifications, date of birth, experience and community certificates in respect of Scheduled Caste/Scheduled Tribe candidates from the appropriate authority.

Applications from employees working in Government Departments, Public Sector Organisations and Government funded research agencies will be considered only if forwarded through proper channel and with a clear certificate that the applicant will be relieved within one month of receipt of the appointment orders.

Applying for the position advertised herein does not by itself automatically entitle an applicant to be called for interview, which will be governed by prevailing rules and regulations. Since it is not possible to call all the candidates for interview/test, the application will be shortlisted for the purpose and the decision of the competent authority will be final in this regard.

Incomplete applications will not be considered.

CANVASSING IN ANY FORM AND/OR BRINGING ANY INFLUENCE POLITICAL OR OTHERWISE WILL BE TREATED AS A DISQUALIFICATION FOR THE POST.

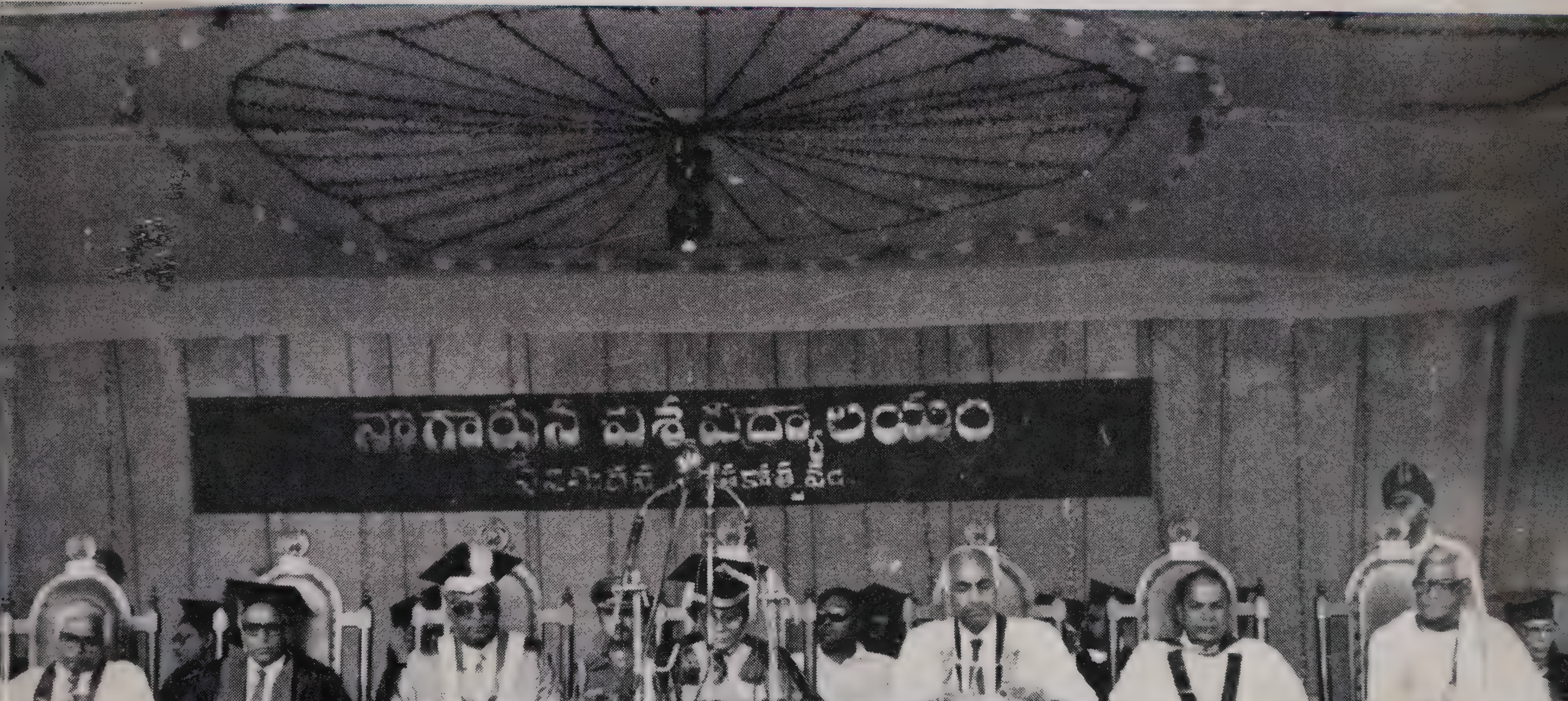
INTERIM ENQUIRIES WILL NOT BE ATTENDED TO.

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House,
16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429.
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

University News

1 9 MAR
C.F.T.R.I., MYSOR

MONDAY, MARCH 9, 1987 Rs. 1.50



of. Maheshwar Dayal (third from right), Secretary, Department of Non-Conventional Energy Sources, Govt. of India, elivered the convocation address at the Nagarjuna University, Guntur. On his right is Smt. Kumudben Joshi, Chancellor of e University and Governor of Andhra Pradesh, Prof. G.J.V. Jagannadha Raju, Vice-Chancellor, is seated third from left.

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17 MAR 1987
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UNIVERSITY NEWS

VOL. XXV MARCH 9
No. 10 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor :
SUTINDER SINGH

Universities of Health Sciences
Structural Organisations

K. N. Rao*

Health Manpower Development activity has been designed to achieve twin objectives—Manpower Management and Health Services Development to meet the needs of the peoples of the World to achieve Health For All (HFA) by 2000 AD. The 3rd world Medical Education Conference that was held in Delhi in 1966 focussed the attention of the world that Medical Education is for the service of mankind and since then the UN direction for a new international economic order and HFA through Primary Health Care have been evolved.

The comprehensive approach to the development of National Health Systems has been further strengthened by the

1. World Health Assembly resolution for HFA in 1977;
2. The Alma-Ata declaration in 1978 that HFA could be achieved by Primary Health Care; and
3. By the adoption of the Global strategies for HFA in the World Health Assembly in 1981.

The basis for such declaration was motivated by basic regard for Equity, Social Responsibility and Human Rights.

The explosive expansion of medical education (1950-70) and production of Quantity jeopardised the quality of Manpower required for the population coverage era. Today the Physician has become the team leader and Agent of social change.

Planning and production and efficient management through appropriate information systems, Continuing Education and Manpower Research are the needs of the hour for economic use of scarce resources. The CIOMS International conferences at Berne and New Delhi emphasized the need for Ethics and Human Values.

The strongest concern in the development of appropriate health manpower resources at present is the relevance of training programmes. Increasing understanding of health systems based on primary health care has stimulated a reassessment of health training activities for all types of personnel from doctors and nurses to allied health personnel. At present the training and education of different health professionals, is the responsibility of individual institutions affiliated to different Universities and are regulated by different professional and government bodies. There is hardly any coordination in training programme being conducted by different institutions.

**Vice-Chancellor, University of Health Sciences, Vijayawada (A.P.)*

The Concepts of University of Health Sciences

In ancient times Universities in India at Takshila and Nalanda included Medicine as a part of general education. In Greece similar situation prevailed. Earlier, University of Medicine was established by Bulgaria in Sofia which controls 4 medical institutions. In recent times in our country one faculty institutes of national importance were created one at Delhi which is functioning as AIIMS and the other at Chandigarh as a Postgraduate Medical Education and Research Institute (PGI). But these institutions were not fully autonomous.

Advances in medical knowledge have made quantum jump with the rapid strides made in the field of medicine in the last few decades. The diagnostic methodology, innovation of newer equipment, data collection, classification of disease and health care delivery system have all undergone remarkable changes. The revolutionary new methods replaced certain methods of treatment which have become obsolete. This being the progress over the years, medical institutions in our country in geneal which are prime centres of patient care and the majority of the doctors in the country are still prectising older methods without making any attempt to incorporate the advances. The health care delivery system that is now in operation in and outside the medical colleges at best is continuation of traditional system with the disadvantages that were inherent in the system as well as those that have been exposed over two decades. With the result benefits of science have not reached the common man. There is greater wedge between the patient and laboratories. The medical colleges as part of the general universities where many faculties other than medicine are there could not devote enough attention to implement the curriculum recommended by the Medical Council of India (MCI) to meet the needs of society. The curriculum is not uniformly followed in all colleges. The presence of only one or at best two medical colleges in every University, is not economically conducive for the University for developing the expertise of concurrent and long term evaluation of curriculum. The need for Universities of Medical Sciences was forcefully emphasized by Dr. A.K.N. Sinha in 1971, the then President of the Indian Medical Association (IMA) and presently President of MCI. The institutes of national importance like the AIIMS and PGI were stressing the need for University status since 1979.

Recognising that present medical education system does not emphasize the promotive, preventive and rehabilitative aspects of health care which are important ingredients of primary health care system the Central Council of Health & Family Welfare has recommended at the meeting in September/October 1986 to review the curriculum and syllabus of undergraduate and postgraduate courses with a view to incorporate the essential elements of primary health care. It has also recommended that Central and State Governments may establish Universities of Health Sciences in order to bring about coordination between various educational and training institutions of modern and Indian system of medicine, Dentistry, Nursing, Pharmacy etc., and promote research.

It also resolved that the Central Government should establish a medical and health education commission on the lines of UGC to be responsible for the coordination of various medical and health educational programmes in all branches of health sciences planning for development of health manpower, allocation of funds and disbursement of grants to medical and health institutions. This in fact was the view of education commission constituted by Government of India in 1964-66. Various professional organisations such as Indian Medical Association also voiced the same opinion.

To translate the views of various committees the State of Karnataka endeavoured to start University of Health Sciences (UHS) and to enact a Medical University Act which lapsed. So did the Tamil Nadu Government prepare a report. The Andhra Pradesh Government not only drafted a bill that enacted the UHS but also got the assent of the President.

In view of this the Government of Andhra Pradesh has established the first University of Health Sciences in this country on 1st November 1986 as per Act 6 of 1986 for the purpose of ensuring efficient and systematic education, training and research in the Allopathic and Indian systems of Medicine, Dentistry, Pharmacy and Nursing.

UNIVERSITY OF HEALTH SCIENCES ANDHRA PRADESH

Objects

(a) to maintain a uniform curriculum in all the institutions affiliated to it;

(b) to conduct a common entrance examination to the courses in all the institutions affiliated thereto; and

(c) to improve the standards of Medical education including research.

Structure

A. The Chief Minister of Andhra Pradesh shall be the Chancellor of University.

B. The Vice-Chancellor shall be appointed by a committee which include (a) a nominee of the Chancellor, (b) a nominee of Government; and (c) a nominee of Executive Council.

C. Authorities of UHS

The Executive Council, Academic Council, Planning Board, Finance Committee, and Board of Studies shall be constituted as authorities of UHS.

Executive Council of UHS is the Principal executive body constituted by the Chancellor with six ex-officio members and six nominated members.

Academic Council shall be represented by the Deans of Medical Faculties and Indian Systems of Medicine, Principals of the Colleges and few nominated persons from the Professors and persons having proficiency in the field of medical education. Vice-Chancellor and members of the Executive Council shall also be the members. The Council shall advise the Executive Council on all the academic matters.

The Planning Board constituted by University with 8 persons to advise on planning and development of the University.

Finance Committee is constituted with Vice-Chancellor as Chairman and Finance Officer as ex-officio Secretary. Three members nominated by Executive Council and the Health Secretary and Finance Secretary shall constitute the committee. This committee shall make recommendations to Executive Council on all matters relating to the finance of University.

Separate Boards of Studies shall be constituted for each department of teaching and research to advise Academic Council.

D. Registry

The Executive Council appoints the Registrar who shall be custodian of records of University and has power to enter into agreements, sign documents and authenticate records on behalf of University.

The University has Academic, Planning and Research, Examinations, Welfare, Health Manpower Development, Finance, Administration and Works wings to organise various functions of University.

E. Institutions

The University of Health Sciences shall have constituent institutions and affiliated institutions. The constituent institutions are located either in campus or in outstations.

Siddhartha Medical College is the campus Medical College. The University shall develop the faculties of Social Sciences, Medical Education and Health Manpower Development, Postgraduate Medical Federation, Continuing Medical Education, Health Administration, Bioengineering and Medical Instrumentation, Pharmaceutical Sciences and History of Medicine. A centre for the study of Medical Education is being organised.

Centre for teaching and research in Community Health Sciences and eight medical colleges at Vizag, Hyderabad, Guntur, Kurnool, Warangal, Tirupati, and Kakinada shall be the outstation constituent medical institutions. Dental College of Hyderabad will also be the constituent institution. Nursing Colleges at Hyderabad, Vizag, and Kurnool will be the constituent allied health institutions.

The institutions of Traditional Medicine in the State of Andhra Pradesh shall be the affiliated institutions of the University of Health Sciences under the Director of Indian System of Medicine.

It is proposed to include Pharmacy education in UHS as the Pharmacy forms important part in Health care. To translate this into effect UHS proposes to affiliate all pharmacy institutions in the State.

Functions of UHS

University of Health Sciences shall formulate and maintain uniform undergraduate curriculum and postgraduate system of education for all medical colleges in the respective systems of medicine. The curriculum will be based on primary health care and emphasize promotive, preventive and rehabilitative aspects of health care. Postgraduate Medical Federation has been established under the auspices of the University of Health Sciences, Andhra Pradesh to give equal opportunities to all postgraduates in the State.

UHS shall offer Continuing Medical Education or as Sir Osler called "Quinqennial brain dusting" to refresh the doctors with updated knowledge through a college of continuing medical education by the voluntary professional bodies in coordination with University.

UHS also plays an important role in the Total Health Manpower Development to meet the needs of the State in Modern Medicine, Indian Systems of Medicine and allied professions and the workers at the grassroot levels CIHW; Multipurpose Workers etc. The recommendations of the World Health Assembly Technical discussions 1984 are accepted by the University.

Recommendations to Universities

The universities can respond positively to the pressing challenges on today's social contract and perceived expectations of their communities by proceeding in the following ways :

1. Reshaping their attitude to egalitarian demands of present day society and identifying with critical problems of ignorance, poverty, distress, disability and disease.

2. Reordering their academic priorities to accord due recognition to involvement with rural development, environmental and primary care problems, and elevating research in these areas to the status now accorded to technically sophisticated research.

3. Restructuring the academic curriculum so that a broad base of fundamental knowledge can be coherently related to contemporary problems, and the fragmentation of disciplines be overcome for this purpose, e.g., find ways that health, social sciences, education, engineering, environmental studies, and agriculture can relate effectively to one another.

4. Broadening their research and service interests to address the concerns of the society that nurtures them without in any way compromising their autonomy.

5. Giving recognition to the contribution that activities in the areas of teaching and research make to social and economic development, and acknowledging this by appropriate academic rewards, including promotion, financial and other incentives.

6. Developing mutually beneficial academic linkages with similar institutions at the national and international levels.

7. Becoming a repository of knowledge, a medium of information, exchange, and an effective vehicle for communication and dissemination of information.

8. Constituting a resource centre for government ministries in the development of policy and the planning of strategies for implementing national programmes.

9. Relating to government in the task of training appropriate manpower for the various sectors of the economy.

10. Ensuring a transition from educating only students to educating the community, helping to assess its health needs, and contributing broadly to the improvement of health.

11. Designing improved methods of continuing education, for all those, regardless of sector, who are likely to contribute to Health for All.

12. Ensuring that the entire education system, and not only the health professions, have opportunity and stimulation to participate in health relevant work.

13. Identifying, describing and disseminating models or examples of university involvement in Health for All efforts; and sharing information among member states, universities and other interested parties.

Model Health District

The district in which the university is located is being planned to be a 'Model' Health District. A consortium is expected to assist health development and public, private, voluntary institutions and the profession is expected to cooperate in this endeavour with community participation.

Research

Primary responsibility for medical research within a country may be assumed by various organisations such as universities' research institutes, public health authorities and national research council. They are sufficiently different in function that no one, by itself, can meet all the research needs of a country.

Universities

The Universities are the traditional home for research where science and scholarship flourish and where medicine has abundant opportunities for cross fertilization with the basic sciences and humanities. It is essential for a country to have such centres of independent thought, for only thus can it defend itself against its own wishful thinking. In theory, the universities have no responsibility for practical programmes and are free to follow knowledge wherever it leads. Yet more practical activities of interest to society also draw attention on a large scale. The university as part of the community has an obligation to engage in certain utilitarian projects for social benefit.

There are many reasons for having as a main function of the university, but two of them deserve special comment. Research and higher education, particularly at the postgraduate level, support each other; in fact, they are inseparable. There is much to be gained by integrating them. The second reason is that the universities as the only source of the scientific structure of a nation will suffer unless the universities are maintained as flourishing citadels of research.

Future Prospects

University of Health Science plans to initiate courses in Human Biology, Health & Social Medicine, Medical Technology, Rehabilitation Medicine, Bioengineering, History of Medicine, Dietics & Nutrition, Biophysics, Health Management, Health Economics, Social & Behavioural Sciences. Collaboration with the National Board of Examination is also envisaged.

University of Health Sciences will be a bridge for closer interaction between various faculties and shall be an organisation to reinforce the efforts of individuals and the community leading to cooperative leap towards strengthening preventive, promotive, curative and rehabilitative services to achieve the goal of HFA by 2000 A.D. It is hoped that all States with more than two medical colleges will develop Universities of Health Sciences and that a Council of Universities of Health Sciences emerges.

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ARCHIVES PUBLISHERS, DISTRIBUTORS
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TEACHER AS PREACHER
The Role of Academicians in World Peace

Anirudh P. Trivedi*
S.V. Narayanan*

The quest for peace has been a distinguishing characteristic of the human race since the beginning of recorded history. But the new circumstances of life in the recent times have intensified our awareness of that quest more poignantly. We are here standing on the edge of something eerie, shaken by an everylasting frantic anxiety about perishing in one danger or the other. If we think that the bell is tolling only for a few on the front, we are sadly mistaken. The bell tolls for every one of us. And at each stroke, the time remaining to you and me dwindles. We have to act, and act fast.

History has to be rewritten because though our conception of the past remains unchanged, that of the present has radically changed. Now we have to adjust our thinking with most unusual conditions of living, with a crisis of the spirit never experienced before. Scientific and technological developments are deeply influencing interpretations of the whole human process, our total behaviour and outlook. Arthur Koestler, writing on "The Age of Discretion," says that 'Nineteen-Sixty' means to him 'anno 15 P.H.', where 'P' stands for post after-and 'H' stands for Hiroshima. He thinks so not because he likes to remember that episode "as an act of penance," but for "a factual and unsentimental reason". He says: "Calenders imply convictions about the importance of certain events". There is, therefore, "a strong case to be made for keeping a kind of second calender in mind which indicates the distance travelled from that decisive moment when a man-made flash of light outshone the sun." He further says that the fact that mankind has acquired the power to destroy itself is merely "a preliminary step." The most important question is what this fact does to the human psyche. The essence of this transformation, according to Koestler, could be defined like this : "hitherto man had to live with the idea of his death as an individual, from now onward mankind will have to live with the idea of its death as a species."

Koestler's conception shakes us out of the narrow confines of our thinking and gives us immediately a sense of cosmic perspective. We are living in a world which is poised uneasily between an era of great enterprise, speed and improvements and an age of chaos, despair and dehumanization. If modern technology has helped us, on the one hand, to create a world economy that could eradicate poverty, hunger and human suffering, it has, on the other, generated limitless possibilities of violence, fear and hatred. It is ironical that science has enriched us with profound knowledge and we are on the verge of even greater discoveries about ourselves and our environment but still we have not acquired wisdom to use that knowledge for peace. We have learned a great deal about life, but pitifully little about the art of living with each other. We continue to hate and fear and fight.

This is our dilemma, and it is a profound one. This is the challenge history has left to us, one of the most complex moral challenges ever faced by any generation. There is no option but to face it. These hard facts make many demands and test our capacity to respond.

The change that has swept the world and the century and has altered the life of nearly every person has, unfortunately, not yet produced anywhere, in corresponding magnitude, the necessary adaptations in the field of higher education. There has come into being a fateful lag between the circumstances of life in which men and women must live and their inner preparation to do so wisely and effectively. There are deplorable reasons why higher education has failed to equip the educated mind to face the challenges of today.

If academicians have courage and capacity to scrutinize their roles and responsibilities in today's world, it would not be difficult to see that they have woefully failed and faltered to live upto the expectations indicated by their career and commitment. Nothing seems more futile than the system of education which they have apathetically allowed to perpetuate and which is interested in itself rather than the people for whom it is supposed to exist. James Ridgeway sees American universities as "a conglomerate corporation" or "big business" whose chief victims are the more than six million students they are supposed to teach. These "academic entrepreneurs," he remarks, see themselves as "Renaissance men" who are interested only in safe guarding their "privacy" and "profit motive," displaying their professional narcissim instead of solving urgent problems." When Mahatma Gandhi was asked what it was that worried him most, he replied, "the hardness of heart of the educated."

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*Department of Humanities and Social Sciences, University of Roorkee, Roorkee.

What, then, we have in our universities and the institutes of higher learning these days, in short, is an excess of academics, not only in the sense of an enslavement to conventions—a sort of roller coaster ride along a well-worn track—but also in the sense of an alienating effect. All other things seem positively vulgar beside the precocities that flourish in academic shades and university sets. What our students are mostly to learn here are just those precocities—distillations of life at a far remove owing to the petrifying effects of an isolated culture which has too little communication with the world outside. Here we are like men in a forest who cannot see the sun through trees. The academic mind is losing its vital function, studies are degenerating into trivial display of ingenuity. Teachers, scholars and researchers have failed, more and more flagrantly, more and more deliberately to identify their pursuits with the public interest, with the things which we need to discover our own urgent meanings.

There are some questions which everybody would like to raise in relation to the objectives of higher education. These questions are pointed and challenging, the answers are still uncertain and uncomfortable.

How are we to deal with the manifold problems posed by the headlong and frightening advances of automation and technology? How shall we come to grips with ensuing problems of unemployment, the potential development of a class society and an increase of leisure time demanding productive and satisfying outlets?

How can we grasp the import of the current struggles in the eternal seesaw of war and peace? How will we rationally resolve the armament race? When will we learn to live side by side as peoples in intelligent, self-respecting co-existence?

Why are we planning to conquer outer space? Even as we allocate time, energy, strength and money to the pursuit of outer space, we are painfully aware that we have not yet solved the problems of our own planet, our own nation, and even our own communities. We do not know yet how to control ourselves and our neighbours. What is even more painful, perhaps tragic, is that we are not at all certain that we have the minds capable of meeting contemporary issues head-on and coming to grips with alternative solutions.

How can we untangle the knotty web of maladjustment in human relationships and move toward maturity of mind and heart? How are we to achieve integrity and ethical standards in government, business, social organisation and in all manners of public life! What is to be done to prevent the tragic and widespread mental health problem—all the sources of which we have not yet fathomed?

How are we to deal with the fundamentals of existence—the simple essentials of adequate food, clothing, shelter. In what ways is our economy to be handled for the greatest benefit to the greatest number?

How are we to develop in people the insights, understandings, knowledge and, most important, moral fibre with which to face questions like these and to arrive at satisfying answers?

Issues like the above—and many more—have become in this century the common problems of all the

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people. They must be faced by each of us, but first of all by the educationists, researchers and teachers, for their participation in decisions affecting these issues is of paramount importance. It is not surprising that we turn to education, in our hour of need—often in our dilemma—believing now, as in the past, that the educated man is the most resourceful, thoughtful and morally sound man upon whom we can rely. If issues like those mentioned above are to be dealt with intelligently, there must be developed in all our educated men and women a fundamental grasp and awareness of those common learnings necessary for dealing with the crucial problems of mankind in the twentieth century. So it becomes the task of the teachers to prepare our youth to be the wise members of the human race who can and will save us from catastrophe.

If it is recognized that the idea of peace is central to man's spiritual and material fulfilment, then all our education must begin with that idea. Its value should be so deeply instilled in the mind of every child that eventually it may germinate in the form of an irrevocable moral commitment to carry on that quest through all the stages of his education till it becomes a condition, a force, an article of faith, revealed in all his works—his creative urges, researches and his total conduct in relation to individuals, institutions and other nations. "The greatest challenge that man faces today is man himself," said the Chinese philosopher, Lao-Tzu. "All is clear, I alone am clouded," he observed. Therefore, all that we need today more urgently is understanding ourselves, our desires and our moral aspirations. That is what Dr. S. Radhakrishnan, the Indian philosopher and great educationist says:

> When our knowledge is increased, our behaviour has to become worthy of our knowledge. For this a mere understanding of human nature is not enough. An increase of moral sensitivity is called for.
>
> Humanity is not a mere organization but a living organism united from within by those spiritual values which are inseparable from man's dignity and freedom. There is one God, hidden in all things, all pervading, the inner soul of all things. We tear asunder this invisible bond and break the body of humanity if we use violence against one another. May we be given the courage and the wisdom, the love and faith to mould the new world.

The greatest and most rewarding of all the arts is the art of living the good life. "Education", says Whitehead, "Is the guidance of the individual towards a comprehension of the art of life." Here he has explicitly set out in a simple statement the functions of art, education and culture, that is guidance and comprehension. All our endeavours to shape the contemporary mind have revealed a singular want of clarity about the great ends of living. We need today, as we never needed so urgently before, all the understanding of these ends, of the problems of our conscience and governing ourselves. The outstanding need, therefore, is interfusion of knowledge, of man and nature, of a discipline to prepare every one, with a deep sense of social foundation and social consciousness, for a life that would never be cut off from its humane sources and inspiration.

The emphasis should be mainly on such educational efforts which can bring fullness and richness into man's life, which can help him to explore his inner creative resources and to release them for constructive purposes, establishing the right relationship with the world of nature and world of society. This implies not so much the capacity to achieve what we desire but the good sense and discrimination to know what are the right things to desire. It is more than efficiency in action—it requires wisdom and decency and charity and compassion; it means the willingness to break the fetters of our petty ego and to expand it till it embraces the joys and sufferings of the whole world; it is, in fact, the capacity to feel for others passionately, poignantly. The Indian people have a pluralistic mind which, apart from accepting differences, has harmonised local and larger loyalities. Mahatma Gandhi declared, "I can keep India intact and its freedom intact only if I have goodwill towards the whole of the human family and not merely for the human family which inhabits this little spot of earth called India." There is a growing realization that problems of people everywhere have a profound effect upon the welfare of the entire world community. None of the world's peoples can rest comfortably when part of the world is free and part slave.

Teaching for world understanding can occur through the experiences of the educated persons in music, art, science, literature or in almost any of the various curricular areas. Teaching for world understanding should in no way conflict with developing within him a basic loyalty to and love fôr his own country. The two concepts can and should always be complementary rather than antithetical. Just as the integrated, well-adjusted personality is the one who is best able to uphold his responsibilities of good citizenship to his nation, he is also the one who is best able to understand the problems of other people. The malcontents, the subversives, the disloyal, the bigoted and prejudiced have internal fears and conflicts to the extent that they are unable to have any grasp of either responsible citizenship or world understanding. In order to develop world-mindedness, the students must be taught to achieve the following objectives:

1. Teaching philosophy and practice of respect for the dignity and worth of the individual irrespective of race, religion, or other factors over which he has no control. Reaffirming faith in fundamental human rights, in the equal rights of men and women, and of nations large and small.
2. Understanding and appreciation of the likenesses and differences which exist among racial, national and religious groups. That is, the world is composed of many kinds of people similar to us in many ways and different in others, and the basic similarities and differences in them are simply due to their geographic, cultural and historical considerations.
3. Understanding that peace is possible only when people and nations work together whole-heartedly in achieving common goals. That is, the peace of the world and our own security, the world's progress and our own prosperity are indivisible. Understanding the interdependence of the world, economically and socially.
4. Using all the sources of knowledge, art, science and technology to promote social progress and better standards of life for achieving larger freedom.

Single experiences of the type described here are not likely to do much in shaping attitudes of acceptance but the effect of the sum total of such experiences is likely to have a positive influence upon the attitudes of a substantial number of students. Teachers, scholars and researchers themselves must be sufficiently concerned with the matter of developing a global perspective in their studies and research work. A truly world-minded teacher is one who is:

> An integrated individual, skilled in the art and science of human relations and conscious of the wide variety of behaviour patterns in the world to which he and his people may have to adjust.
>
> Well informed about the contemporary world scene and its historical background and concerned about improving the conditions of people everywhere.
>
> Rooted in his community, country and culture, but able to identify himself with the peoples of other countries and cultures.

The great humanistic philosophy in liberal learning must be translated into twentieth century terms. All liberal education, as we know, is at its centre a process by which men come to understand themselves and their own destinies through understanding their identity with and differences from human beings in other cultures and societies. It has therefore a great mission to fulfil, the mission of liberating the mind and enlarging its perspective to embrace the multifaceted world of today. It must remove the blinders of parochialism and lead to an emancipated person toward an affinity for all that is human.

The upsurge of new nations and the consequent increasing world importance of their cultures places a special obligation upon higher education. The newly independent peoples wish to be respected and understood by other nations. Therefore, we must acquire sympathetic understanding of both new states and old states that have achieved new world status. To accomplish this, a new strategy must be devised to divest higher education of its present provincialism, or, more properly, of its historical and current preoccupation with the heritage of Western Civilization. The new strrategy must extend learning to include the great teachings of other world cultures and thus fulfil its purpose of embracing life in all its diverse human forms. The cultures that have been mostly neglected are particularly those of Asian and African countries. There must be an intelligent appreciation of these nations in their current and historical manifestations, specially by the Western societies. They must move, with dedication and faith, toward the idea of cultivating international understanding through the exploration of non-Western literatures and arts, for it is in the realm of art and literature that we can, together, project the concept of "One World".

One of the best experiences of the teachers and learners of making a study of people in other lands and their cultures is to have direct contact with them during the specific period of learning. Teachers and students interested in intensive studies of other countries or cultures may be encouraged, through exchange programmes, to travel abroad and discover source material in the actual situation of living. Similarly, the teaching of foreign languages must become an effective tool of fostering international outlook. This may encourage greater acceptance of other national groups through direct contact, understanding and communication. These are the ways to achieve insight into the continuous processs of interaction among peoples and cultures. Interaction is of many kinds and on every scale. It may consist of the simple cross-cultural contacts. It may involve organized, private ventures of economic or social character. It may involve the continuous interchange of thought and knowledge. Only when this is understood, it is possible to discern under-currents of meaning in the formal conduct of political relationships among nations.

If we think of higher education as one of the most effective means of ensuring world peace, we must not forget or overlook the role of scientists and technologists in this ennobling, endless mission. It is a palpable fact that so far they have not come out of their lackadaisical laboratory limits to join hands with mankind in an earnest search for peace. A savage sense of failure is writ large in their academic pursuits and profession. All technical and scientific education has been totally devoid of ethical direction and social concerns. Science shares the aims of our society just as does art or liberal learning for that matter. But the popular image of a scientist is that of a recluse pursuing his life's work in the quiet of a laboratory. He created the distance which he enjoyed and now the same distance has turned to distrust. Scientists have failed to teach science, as they ought to, for its values, for its uses in improving liberty and the quality of life, and for remaking the world to serve human desires. Talking about scientists and their social responsibility, J. Bronowski says, "There is a division in the mind of each of us, that has become plain, between the man and the brute". And he thinks that science has mainly contributed to this cleavage of mind which has become "the main item in a list of war crimes." This is the indictment which scientists cannot escape. "Warlike science," Bronowski observes, "is more than a byproduct of a warlike society." Why scientists have failed, he asks, "to stop fitting science for death and to begin fitting it into our lives?"

The answer to this question lies in our approach to scientific education. In fact, we never tried to understand science in relation to society. They have always been out of step. If we are sincere in our desire to move towards more meaningful solution, we must first learn to match them. And there is no way of learning this unless we learn to understand both in their symbiotic relationship. I.I. Rabi points out that it is one of the paradoxes of our age that people in general, educators, law makers, moulders of public opinion, writers, novelists, columnists, labour leaders and administrators have not devoted themselves more to understanding the force which is shaping our present and our future. "On the one hand," he says, "if we consider the assimilation of science into our way of thought we find that our general public—even our educated public—is as ignorant of science as a healthy Hottentont is of physiology. We are like the city boy who likes milk but is afraid of cows."

We have failed to recognize the distinction between scientific knowledge and scientific attitude or scientific temper. The result is a sad failure in defining our objectives. Without proper understanding of scientific spirit or scientific discipline, application of scientific knowledge is as devoid of significance as certain action without moral principle. One reason why our organized efforts for peace have not been effective or positively rewarding is that decision makers and statesmen have not cared to take necessary inputs from scientific education or, more appropriately, from scientific culture and scientific humanism. Their decisions are dictated mostly by political or ideological considerations rather than by the scientific outlook. It would be a folly to believe that a complex organism like modern society, dependent as it is on science for its life-blood and development can continue to be managed properly by people whose education is not imbued with the scientific spirit and who have never experienced the influence of scientific discipline. Decisions bearing upon national and international problems must be reached by consulting scientists also. The very aims and ideals which condition these decisions come from the intellectual and spiritual background of the people who are in positions of responsibility. A scientist's opinions on politics, economics and even on morals may be more valuable than those of non scientists.

We ought to teach science, therefore, "for its values, for its uses in improving the human liberty and the quality of life," says Dr. Paul Hurd, an eminent educator at Stanford University. "Scientists should be more socially responsible," he observes because they are "in possession of one most valuable asset—knowledge." They have to reorder their priorities to ensure peace, harmony and good life for all. For that we need a global conscience, a new theology of the earth which may enlighten us about humaneness that has been so far abstract and without meaning to most of us. Science must create values, it must become a guide to man's conduct and to enrichment of his inner life. A professor of science has to learn and use the discipline of a parson. All scientific education must aim at making us aware that there is something unique about the earth and therefore something unique about man. This uniqueness of the earth and of man should give to human beings a new sense of value, a new orientation. And when science begins to look into man, explore what makes him man and not an animal, the goals of unity and peace should be within our reach. □

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Universities and Economic Development

Professor Maheshwar Dayal, Secretary, Department of Non-Conventional Energy Sources, and Chairman, Commission for Additional Sources of Energy, delivered the Convocation Address at the eighth annual convocation of the Nagarjuna University, Guntur on 23 January 1987. Professor Dayal says that the non-conventional sources of energy constitute a key factor in economic development because they are based on locally available renewable resources which are employment generating and non-polluting. Taking his audience on a conducted tour of the available and potential energy sources, Professor Dayal also takes stock of our efforts at their promotion and use. Excerpts:

Convocation

Universities, called seats of learning, are the heart and soul of any country. They provide the youth not only an environment for self-expression but a golden opportunity to prepare them to face the challenges and tasks ahead. Universities are the fountain-heads of new ideas, philosophies and concepts which have brought about radical changes in our thinking and perceptions from time to time. Thus, keeping in view the unique position of universities, their role in the national development process is of paramount importance.

Indian universities have a glorious past with a number of significant achievements to their credit. All great leaders in science, technology, religion, culture and education had their formative career moulded only in the universities. A university provides a colourful atmosphere to think freely, to mix freely and to act freely. Who would not like to be back in the university to play on the open lawns, to argue with friends on subjects of topical interest or be absorbed in a number of stimulating intellectual pursuits? There is time, bubbling emotions and freedom. Too often, however, we find a feeling of stagnation, and even decay, in some of our universities. The question arises as to how this immense potential energy in the universities can be galvanised into a kinetic, creative and relevant manner and how we can bring in an atmosphere of enthusiasm which encourages creativity and brings about continuing innovation.

The universities surely have objectives of increasing knowledge—not only increasing the knowledge of students who come to them to prepare for adult life, but increasing the *sum total* of human knowledge through research, reflection and analysis. The additional knowledge is in relation to social as well as physical objects and processes. Some activities of learning have to take place in regard to the inner mind of man, to philosophy, to theoretical knowledge or in regard to understanding of outer space and the universe beyond. However, there also has to be some emphasis on undestanding and knowledge about down to earth factors relating to human society and its well being. It is in this context that universities can have an important role in the tasks of economic development. This can be done by training manpower in a suitable manner to meet economic tasks; research and development into these tasks; and through actual projects which can show how best to apply the knowledge gained by research and development, and at the same time provide lessons to further improve our knowledge and understanding of specific areas. Thus, universities, and the pool of educated manpower which exists in them, can have a continuous and direct interrelationship with the work of economic development on a two-way basis—by *contributing* knowledge and skills in development-related programmes and by also *receiving* knowledge and experience *through* these programmes. Indeed it appears to me that such a linkage and interaction is an essential part of universities' activities today. This linkage would help to prevent the universities from becoming only ivory towers, isolated from their surroundings and inbreeding in a knowledge which may grow rapidly out of date, or too theoretical. On the other hand, the linkages with the processes of economic and social development would help to keep the universities themselves vibrant and contemporary, sustain the interest and enthusiasm of the student and faculty populations, and also make a direct and positive contribution towards generating knowledge to better improve the economic and social well being of fellow citizens. Such positive linkages will have another advantage of livening the curricula in the universities and should, therefore, be part of the syllabus in different subjects at different levels. The ideas of learning from practice and experience would also get nurtured.

The linkage of universities to economic development process is also essential from the intellectual, social and ethical points of view. This is because we see around us so much need for development and conditions of such deprivation, want and misery, that it is surely a challenge to the intellect, and to the groups of intellectuals in university communities, to find ways of, and contribute towards, removing these conditions of want. We cannot remain little islands of prosperity in a sea of poverty. Ethical values and respect for human dignity surely compel us to use the knowledge, understanding and experience given to us, to assist improvements in the quality of life of our less fortunate brethren.

A great advantage of university linkage with economic development is the involvement of youth in the development processes. This can become a great cause to which talents can be harnessed and upon which qualities of dedication and self-sacrifice can be built, qualities which were so abundant during India's independence struggle and which have so markedly declined today. Our talented and capable youth, I am sure, will rise to the occasion and respond well to the cause of development, just as they did to the cause of freedom, if they have dedicated leadership and the proper environment to give of their best.

As we move towards the close of a century and the dawn of another, the world seems to stand at crossroads. Despite the fact that great advances have been made in science and technology, the economic and social crises have become more acute. Inadequate supply of energy, pollution of land, air and water, growing unemployment, and decreasing soil fertility are some of the concerns of a serious nature. This state of affairs could be tolerated upto a certain point of time but the situation now seems to have assumed serious dimensions. Any further delay in finding acceptable solutions may not only prove risky but even disastrous.

There is no denying the fact that during the last 40 years, India has made significant progress on all fronts—agriculture, transport, communication, industries, education and social services. However, we still see millions of people living in conditions of great poverty and want and without even the basic needs of food, water, clothing and shelter available to them. This in turn brings numerous social and political tensions which aggravate linguistic, ethnic and religious differences, which tend to create divisions and barriers within our society and introduce violence even for simple issues. Violence begets violence, which on turn further impedes economic and social progress, thus completing a vicious circle in which conditions could worsen with time.

The economic development of a country has a number of implications and ramifications. It should be concerned not only with aggregate economic growth but also with its composition and the distribution of its benefits, and seek to increase agricultural and industrial productivity, expand employment opportunities and meet basic human needs of the poorest groups in society. The development policies should involve a package of investments and services which will in particular accomplish the following: increase agricultural output and productivity, thereby transforming rural regions from subsistence to commercial agricultural economics in order to meet the basic food needs and raise the income of the rural poor; stimulate agro-processing, agri-business and related rural industries in order to diversify local economies, provide greater employment opportunities and generate internal demand for domestically produced goods; increase access of the rural poor to the social services facilities, technologies, and infrastructure needed to improve health, nutrition, literacy and family planning, thereby increasing the productivity of individual workers, raising the overall standard of living in rural areas, and stemming the tide of rapid rural to urban migration. The intended beneficiaries are small scale farmers, rural entrepreneurs, migrant workers, shifting cultivators and landless labourers, as well as a squatters and low-income workers on the fringe of the urban economy.

'Eradication of Poverty' is a major target of our national programmes. This objective cannot be achieved unless the benefits of economic development percolate down to the lowest rungs of society. Agricultural practices have always been a part of rural life. The fact that 85 per cent of our population lives in rural areas lends emphasis to the need for industries and technologies which are modest in cost, easily maintained, worker controlled and which meet the basic needs of the people. We can say that suitable technologies are those in which tools, devices and processes are developed which use to the greatest extent possible local resources to meet local needs within local cultural patterns.

Choice of a suitable 'model of development' is a key factor in the overall progress of a country. Take the case of one sector—energy. Different epochs of history gave preference to different forms of energy. Fossil fuels dominated the scene for several centuries, because they were available abundantly at reasonable cost. During the industrial revolution, coal was the most favoured form, which brought about far-reaching changes in the commercialization of the traditional process. This was followed by oil, which helped to usher in many significant transformations in the transportation and industrial sectors. The oil crisis during 1973 brought about a tremor in our economic activities, but it can be undoubtedly stated that it proved a blessing in disguise. We at once realized that too much dependence on a single form of energy is not the right approach. It has to be a multiple source approach based on locally available potentials. A serious thought started to be given to search alternative, renewable and non-polluting sources of energy, such as hydro, solar and bio-energy, which are particularly promising for countries like India with a large rural population. Creation of the Department of Non-Conventional Energy Sources (DNES) bears ample testimony to the importance the Government of India has now given to the decentralized sources of renewable energy.

Steep increase in the price of fossil fuels and their depleting nature is a cause of major concern. According to Petroleum Statistics, the recoverable reserves of petroleum in India are of the order of 511 million tonnes, which would be exhausted by about the turn of the century. Even if new sources are discovered equivalent to those discovered hitherto, they are not likely to last beyond 2015 AD. Even under the most optimistic scenario, our indigenous production of oil is not likely to exceed 50 million tonnes per annum by the end of the century against the minimum annual demand of 90-100 million tonnes. Thus, is order to bridge the gap, 40-50 million tonnes of oil will have to be imported, involving a substantial amount of foreign exchange. The recent softening of oil prices in the international market created a false sense of complacency in certain quarters. We must not allow ourselves to be taken in by this temporary situation; otherwise, the consequences for economic development will be disastrous.

The electric power situation is known to all concerned. Shortages of electric power afflict most parts of the country, hampering agricultural and industrial production. Prices of power are continuing to rise, but even with the recently announced increases in some cases, it is estimated that on present performance and tariffs. the State Electricity Boards will have accumulated losses of more than Rs. 10,000 crores during the Seventh Five Year Plan period. Thus, the nation as a whole has to do everything possible to decrease the consumption of commercial sources of energy and step up the utilization of non-conventional and renewable sources of energy, which are perennial, cause no pollution, preserve the ecology, and have short gestation period.

Economic development of a country is directly dependent on quantity, quality and price of energy supply. The present energy scenario calls for a fresh look at national priorities to maintain economic development on a sustained basis. The potential for generating energy from Non-Conventional Renewable Sources of Energy (NRSE) is enormous in India. The country has abundant sunshine, wind and biomass resources. As a result of vigorous R & D efforts in the country during the past few years, many technologies based on these resources have reached maturity. Utilization of solar energy through thermal as well as photovoltaic routes, biogas, generation of power from wind and biomass, including agricultural wastes and residues, generation of power from urban wastes are now fully practical in this country. Most of them are already being used in a substantial way and these uses are increasing daily. Further, many of them, in spite of apparent high cost, are also now economically competitive for several applications, particularly in the rural areas. Several other technologies have shown promising results in large scale demonstration and trial programmes. Still others offer a longer term development potential.

The seriousness of the fuelwood problem has been fully realized at the national level and a number of programmes have been initiated in the country. The Prime Minister, Shri Rajiv Gandhi's announcement to bring 5 million hectares of wasteland under afforestation every year marks a significant step in meeting this bare necessity of life in the rural sector. DNES has recently launched a number of activities aimed at fuelwood conservation, energy plantation on wasteland, and new conversion technologies.

The Improved Chulha Programme is one of the most important programmes, designed to save wood and forest wealth, to improve the hygienic conditions of the villages and to reduce the drudgery of women. Each chulha saves 750 kilograms of wood equivalent per annum in field conditions. More than 25 lakh chulhas have already been installed in the short time since the national programme was launched. This is bringing immense benefits to the villages, particularly to the women, in the form of smokeless and clean homes, reduction of drudgery and saving of time, apart from the huge savings in fuelwood.

Biogas is an important innovation to conserve fuelwood. Unlike huge thermal power stations, these mini 'power houses' of the rural folk do not involve heavy capital investment or huge transmission and distribution losses. More than six and a half lakh biogas plants have already been installed in the country. These are generating more than 7200 lakh cubic metres of gas annually equivalent to more than 24.96 lakh tonnes of firewood valued at Rs. 100 crores per annum. In addition, these plants generate 120 lakh tonnes of high quality organic fertilizer valued at Rs. 99.36 crores per year. Even if 85% are assumed to be operational at any time, the total annual benefits to the nation from biogas are in excess of Rs. 170 crores.

Solar energy has become commercial for the use of low and medium grade heat requirements. Solar thermal systems equivalent to 30,000 sq mts of collector area have already been installed. 45,000 solar cookers have been sold. These solar thermal systems are generating thermal energy equivalent to more than 200 million kWh per annum.

Increasing productivity of fuelwood trees and shrubs grown on problem soils—saline soils, degraded hill slopes, coastal alluvium, sand-dunes, laterite and lateritic soils, black soils, ravine lands—is a major national problem. For this purpose, DNES has planned to set up a chain of Biomass Research Centres in the country. In addition to the three centres already established at Garhwal University, Srinagar; NBRI, Lucknow; and KMU, Madurai, two more such units at ML Sukhadia University, Udaipur, for the Western region and Purulia, West Bengal, for the Eastern region have been set up. A Biomass Research Project for Coromandel Coast has been sponsored by DNES at the Institute for Offshore and Coastal Research (INCOR), Visakhapatnam, Andhra Pradesh.

With a view to creating awareness of the role of fast growing species in meeting energy needs of particular areas, a programme of setting up Energy Plantation Demonstration Centres has been launched. At the field level, projects have been started at a number of sites in the country. The programme is being implemented by universities, research institutes, state departments, nodal agencies, forest departments, forest corporations and voluntary agencies. It is widely held that many of the techniques currently used in agriculture will have to be employed in energy forestry, if productivity is to be maximized.

The problems of electrification in remote and inaccessible areas are enormous. The cost is prohibitive; maintenance is nearly impossible. Electrification of such areas and of 'problem' villages has been taken up through solar photovoltaics. As many as 200 villages were electrified last year and another 300 will be taken up during the current year. The country has already entered the field of large scale electricity generation through wind. A total capacity of 3.3 MW will be achieved shortly. Wind farms at Mandvi (Gujarat)—1.00 MW, Tuticorin (Tamil Nadu)—550 kW and Okha (Gujarat)—550 kW are already operational. Two more, 550 kW each, are expected to be operational at Puri (Orissa) and Deograh (Maharashtra) shortly.

Of the petroleum products, diesel is the single largest contributor in India. It constitutes a third of all petroleum products and the demand for it is increasing at a faster rate than for the other products. Nearly half a million diesel pumpsets go into operation every year. Biomass gasification offers the most promising route, because it helps in conservation of diesel and saving of foreign exchange. Moreover, this technology can be employed reliably and conveniently to energize even small engine driven pumpsets in the capacity range 5-10 HP, which are common due to small land holdings of the average farmers.

A new concept of meeting the entire energy needs of a village through locally available renewable sources of energy has been launched. It is possible to revolutionize industrial and economic life in villages by setting up these systems, which I have called Urja Grams. Many such villages are already in existence and have proved the viability of the systems. At least 5000 such Grams will be taken up during the Seventh Five Year Plan, if funds are available.

Rural industrialization based on locally available bio-resources is a pre-requisite to generation of employment opportunities on a massive and sustainable basis. This objective can be achieved only through energization of the rural sector rather than more conventional electrification programmes only. There are a number of devices/gadgets based on non-conventional sources of energy, which can be manufactured by the local artisans themselves, provided proper workshop facilities are provided and sound training is imparted on practical lines. Examples may be cited of biogas plants, improved portable chulhas, charcoal kilns, briquetting machines, gasifiers, human and animal energy saving devices, preparation of bio-fertilizers based on biogas slurry, mushroom residues, earthworms, plant and animal wastes which can help not only to minimize energy input, reduce the cost of production but also maintain soil fertility for crop production on a permanent and sustained basis. Energy plantation on wasteland is another important activity to generate employment potential. It has been estimated that 300-400 mandays per ha can be generated through energy plantation programmes alone.

Pollution of land, water and air is posing a major threat to the survival of mankind. Dumping of urban waste in the localized pockets, discharge of industrial effluents into rivers, streams and oceans, release of dust-like particles during a variety of processing operations, emission of pullutants from the vehicles, trains and aeroplanes are some of the major concerns which cannot be under-estimated/overlooked. At a time when the financial position is getting scarcer with the implementing agencies, disposal methods as such may not help to keep the environment a safer and cleaner. Conversion of these polluting substances into energy/useful economic products is an elegant and viable option to meet this serious challenge. DNES has initiated a number of programmes like sanitary landfill, incineration plant, biogas generation from sewage, animal waste, briquetting of organic residues, energy plantation on wastelands which are aimed at meeting energy needs, maintaining sanitation consistent with environmental protection. Biomass programme offers a promising scope to reduce the carbon dioxide content in the atmosphere, which has increased significantly during the last decade. A proper analysis of the bio-energy-environmental interface can provide a low-cost down to earth solution to the pollution problem, which is threatening the very survival of mankind.

It is really unfortunate that despite multi-dimensional benefits of NRSE, this programme has not received the status it deserves, because the traditional economists have failed to put the case in the right perspective. Take for instance the supply of coal. Besides the cost factor, how much energy is consumed by railways, trucks and other modes to transport coal from north to south and east to west? How much foreign exchange is being drained to meet energy needs of different sectors? How much capital investment is required to set up large thermal power stations with a long gestation period? How much loss of power is registered during the transmission and distribution process? How frequent are the power failures/shutdowns? How may mandays are lost due to undependable nature of power supply? A group of people who compare this centralized system of power supply from conventional sources with the decentralized systems of energy supply from non-conventional sources forgets that the former is heavily subsidised from the public exchequer, whereas the total cost on the latter is to be borne by the beneficiaries, who represent mostly the rural folk with poor financial resources. A well graded rationalized scheme of fiscal incentives for NRSE would not only ensure a dependable, clean and adequate supply of energy, but also help in significant conservation of fossil fuel resources so badly needed in selected applications. This programme is based on democratic and equity principles with full involvement of the people of all categories—old, young men

Nagarjuna University
1986-87

1. During this Decennial Year of the University's establishment, three more districts of Krishna, Guntur and Prakasam have been added to the University's jurisdiction. The University now has 139 affiliated colleges comprising inter-alia 4 Medical colleges, 6 Engineering Colleges, 8 colleges of Education, 3 Law colleges, 13 Colleges of Oriental Learning, and one college of Music and Dance.

2. The University has introduced new Postgraduate courses in Mass Communication, Sociology, Computer Science and Technology.

3. A project for the development of energy plantation in the university campus has been taken up with assistance from the Department of Non-Conventional Energy Sources, Government of India. It is proposed to establish a Centre for the Study of Alternative Energy Sources.

4. The University has set up a Disaster Mitigation Laboratory, the first of its kind in the country. It is also proposed to set up a Centre for the Study of Scientific Socialism and a Women's Studies Centre.

5. Nagarjuna University bagged the team championship for men in the inter-university tournaments in Andhra Pradesh. The University conducted tournaments in Hockey, Volleyball and Basket Ball.

6. Several schemes of social service such as blood donation, community health checkup, tree plantation, road works, adult education and tribal welfare programmes have been carried out under the NSS Programme. Dr. K. Hanumantha Rao, the University NSS Coordinator received the best NSS Coordinator award of Andhra Pradesh.

and women, civil and ex-military men, individuals and institutions, scientists and technologists, activitsts and field workers, voluntary organizations and youth associations.

From this synoptic survey, it is evident that new and renewable sources of energy constitute a key factor in economic development, because they are based on locally available renewable resources, which are employment generating and non-polluting. They themselves work-with nature and with the environment and help to preserve the ecological balance. This is itself a major objective towards which we must work in today's world, as Indira Gandhi said in an Address to the UN Conference on Environment:

> "Modern man must re-establish an unbroken link with Nature and with life. He must again learn to invoke the energy of growing things and to recognize, as did the ancients in India centuries ago, that one can take from the earth and the atmosphere only so much as one puts back into them. In their Hymn to Earth, the sages of the Atharva Veda chanted:
>
> > 'What of thee I dig out,
> > let that quickly grow over,
> > Let me not hit thy vitals,
> > or the heart.'
> >
> > So can man himself be vital and of good heart and conscious of his responsibility."

It hardly needs to be emphasized that success of decentralized systems of renewable energy, or any other decentralized systems of technology application, depends primarily on full involvement and training of the beneficiaries. Universities through their vast infrastructure in the form of constituent colleges can play a significant role in spreading such technologies in the rural sector.

NRSE is not a single subject, but a multi-disciplinary approach. Take for instance the case of biomass. For any successful R&D programme, it needs manpower with background of science, technology and engineering. The various departments in the universities can form inter-disciplinary teams for taking up research projects relevant to their respective areas. More stress on R&D at the micro-level situations would not only make the investigations more worthwhile and practical but also lead to a better understanding of the prospects and problems of the eco-system in which one is living. This approach of working with Nature will make education more interesting, absorbing and holistic in nature. ☐

UNIVERSITY NEWS

Form IV
(See Rule 8)

1. Place of Publication : New Delhi
2. Periodicity of its Publication : Weekly
3. Printer's Name : Sutinder Singh
   Whether Citizen of India : Yes
   (If Foreigner, state the country of origin) : —
   Address : Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002
4. Publisher's Name : Sutinder Singh
   Whether Citizen of India : Yes
   (If Foreigner, state the country of origin) : —
   Address : Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002
5. Editor's Name : Sutinder Singh
   Whether Citizen of India : Yes
   (If Foreigner, state the country of origin) : —
   Address : Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002
6. Names and addresses of individuals who own the newspaper and partners or shareholders holding more than one per cent of the total capital. : Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002.

I, Sutinder Singh, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Sd/-
Publisher

M.Sc. in Environmental Sciences

The Jawaharlal Nehru University (JNU) is introducing a two-year interdisciplinary programme in Environmental Sciences leading to the award of Master's degree of the University from the academic year 1987-88 beginning in July, 1987. This is in addition to the two new programmes already announced i.e. Ph.D. in Physical Sciences and Biotechnology.

The programme is designed to cover major aspects of the environment together with provision for some specialization in areas such as Atmospheric, Earth Pollution and Biological Sciences as well as to provide for orientation towards environment problems besides in-depth training and imparting of skills through a set of optional and compulsory courses in a number of interdisciplinary areas.

The admission to the Programme will be based on an All India Entrance Test scheduled to be held at 27 centres spread all over the country. The entry to the Programme is open to persons holding Bachelor's degree in any discipline of science, basic or applied with a minimum of 55% marks.

Teacher Training for SC/ST Candidates

As part of its programme for faculty development, Anna University has introduced a teacher training programme for scheduled castes and scheduled tribes candidates. It is well known that a large number of vacancies exist in the engineering and technological institutions. One way to remedy the situation is to train fresh graduates for the teaching profession by providing suitable incentives. A beginning has been made with a special programme for SC and ST students to induct more members from this section into the teaching profession to fill up the seats reserved at the entry level.

Trainees in the first instance will be selected from among the B.E./B.Tech. degree holders belonging to the SC/ST communities. They will be given an opportunity to qualify for the Master's degree on a part-time basis. During the period of training they will be paid a stipend of Rs. 1300 p.m. On the successful completion of the training, the candidates will be appointed as Lecturers with an initial pay of Rs. 700 p.m. plus number of increments equal to the period of training in years plus one in the scale of pay for Lecturers in addition to the usual allowances such as D.A., H.R.A. and C.C.A. The trainees will be asked to sign a bond to serve the University for atleast three years after successfully completing their training programme.

Six Teacher Trainees (SC/ST) are continuing in the above programme and one Teacher Trainee has already been appointed as Lecturer on successful completion of the training.

Japanese Grant for Visva Bharati

The Japanese Government is reported to have donated a sum of Rs. 35 lakh to the Visva Bharati University for the development of its various projects. To be channelled through the Central Government, the University's Adult and Continuing Education Department gets the lion's share to boost its 34 centres engaged in teaching more than 3400 students of several age groups. A rural library van with audio-visual equipment has also been purchased.

Orient Heritage Towards Modernity —Narasimha Rao

Shri P.V. Narasimha Rao, Union Minister of Human Resource Development laid the foundation stone of Rs. 30-lakh UGC funded lecture hall at the Sri Venkateswara University. Speaking on the occasion, he underlined the need for a composite approach to orient our heritage towards modernity. Shri Rao asked the University to take up studies on non-conventional subjects. Although the task was not easy but consistent efforts were bound to bear results, he opined. He also felt that the newly started computer centre at the university could play a vital role in certain new studies with an active interface with scholastic institutions and the Kendriya Sanskrit Vidyapeetha.

Andhra Seeks a Rural Varsity

The Andhra Pradesh Government is reported to have requested the Central Government to set up a rural university in the State out of the six rural universities proposed to be set up in the country during the Seventh Five Year Plan. According to State Education Minister, the proposal has been initiated on the recommendations of a committee constituted by the Government which recommended that a rural university be established at Etcherla near Srikakulam by elevating the existing postgraduate college there. The State has also offered to provide 600 acres of land for the proposed university.

UGC Assistance for Anna Varsity

The University Grants Commission has approved the plan and estimate for the construction of a building for the Computer Science

Department at Anna University at a total cost of Rs. 21.15 lakhs. The Commission has also approved for funding a building for the Biotechnology Laboratory at a cost of Rs. 18 lakhs with the matching grant given by the Government of Tamilnadu.

It will be recalled that a 3-Semester M. Tech. course in Biotechnology was introduced in the Anna University in the academic session 1985-86.

IGNOU to Offer New Courses

The Indira Gandhi National Open University (IGNOU) proposes to introduce new courses in business management, women's education, computer sciences and rural development by the end of the current academic year. It also proposes to set up 100 more study centres and 10 regional centres.

According to Vice-Chancellor of the University, Prof G. Ram Reddy, the IGNOU and the APAU would also collaborate in producing audio-visual and other educational aids. This, he said, would avoid duplication of work and equipment. Prof. Ram Reddy was addressing the first regional orientation programme for academic counsellors held at Hyderabad.

1.25 Cr. Assistance to Jodhpur University

The University Grants Commission (UGC) is reported to have sanctioned a sum of Rs. 1.25 crores for the development of Jodhpur University during the Seventh Five Year Plan. This was revealed by Prof. M.L. Mathur, Vice-Chancellor of the University recently.

News from Agril. Varsities

Extension Methodology Course

With the implementation of Training and Visit System for agricultural development in the State of Jammu and Kashmir in 1984, the Sher-e-Kashmir University of Agricultural Sciences and Technology has assumed responsibility of Extension Education. In this behalf, the University undertakes activities like:

(i) Organisation of monthly workshops for formulating messages for farmers with reference to area and crops in respect of Jammu and Kashmir Divisions;

(ii) Put up "Farm trials" in cooperation of the Deptt. of Agriculture;

(iii) Arrange pre-seasonal workshops for Rabi and Kharif crops; and

(iv) Organisation of different training courses, namely, (a) Orientation (b) Refresher (c) Specialized for different level of functionaries from the State Deptt. of Agriculture.

Krishi Vigyan Kendra/Extension Training Centre of Sher-e-Kashmir University of Agricultural Sciences and Technology, Malangpora organised a three-day innovative, specialised training course on "Extension Methodology" on 17-19 February 1987 under National Agricultural Extension Project (T and V) for the extension functionaries to up-date their professional competancy in transfer of agricultural technology. 20 Extension Officers, Sub-divisional Agricultural Officers and Subject Matter Specialists of Kashmir Division participated in the course. During the course use of extension tools and techniques in (1) Interviewing farmers, (2) Organising group discussion, (3) report writing for different media, (4) use of teaching methods in combination, and (5) how to overcome barriers in transfer of technology were discussed and demonstrated by the trainers.

Sports News

University Athletes Excel at National Meets

National Cross Country

Ms. N.S. Jadhav of Shivaji University, Kolhapur won the first place in the National Cross Country Championship concluded at Pune on 13 February 1987. Mr. Yashwant Singh of Garhwal University was declared winner in the Senior boys category in the same Meet.

Both Indian Universities Cross Country Women Team and Senior Boys Team were declared runners up in the National Cross Country Championship in which all the prominent National Athletes participated.

National Women Cricket

Indian Universities Senior Women Cricket Team were declared runners up at the Senior National

Championship held at Hyderabad from January 15 to 26, 1987. The team lost in the finals to the star studded Indian Railways in a well contested match. It was the second outing of the universities team in the National Championship.

Earlier the Varsities Team deafted teams from Bihar in the pre-quarter final, Andhra Pradesh in the quarter final and Tamil Nadu—the last year's finalists, in the semi-final.

Sports Grants Enhanced

The Department of Sports and Youth Affairs, Govt. of India, is reported to have decided to raise the financial assistance given to universities and colleges for development of sports through the University Grants Commission (UGC) under the National Sports Organisation Scheme. The enhanced grant is for the construction of sports stadia, swimming pools, purchase of sports equipment, improvement of playfields and existing stadia, swimming pools, gymnasium, etc.

News from UGC

INSAT-1B Programme of UGC

Between 9th and 19th March, 1987 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

9-3-87

"Oris : A Biomedical Industry"
"Electron Microscope-II"
"Homoeopathy"

10-3-87

"India and World Bank-II"
"Function of Management Planning"
"City that Jaisal Built"

11-3-87

"Welcome Mr. Halley! Science-I"
"Foot Holds"
"Sun Power for Farms"

12-3-87

"Thermal Power Plant-II"
"Carbon Flies"
"Images of Life"

13-3-87

"Food Preservation-II"
"Energy for the Future"
"Welcome Mr. Halley! Science-II"

14-3-87

No Telecast

15-3-87

No Telecast

16-3-87

No Telecast

17-3-87

"Unemployment and Possible Remedies"
"Geothermal Energy"

18-3-87

"Astronomy Before Technology—Towers to Heaven"
"Star Wars"
"Welcome Mr. Halley! Halley's Comet-I"

19-3-87

"Shift Registers"
"Nuclear Application : Nuclear Art"
"Unravelling the Past: Chemistry helps in Archaeology"

CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY AND EXAMINATIONS

Applications are invited from College/University teachers for admission to Correspondence Courses in Evaluation Methodology and Examinations at Basic Level, Intermediate Level and Advanced Level/Special Professional Course. The duration of each of the three courses is six months. A personal 'Contact Programme' for three days is planned for each of the three courses. Universities/Institutions sponsoring candidates can meet the registration/course fees from out of unassigned grants by UGC.

Request for prospectus and application form accompanied by a crossed Indian Postal Order for Rs. 10/- drawn in favour of the Secretary, Association of Indian Universities and a self addressed stamped envelope (Re. 1/-) should reach the undersigned. Last date for receipt of application is **15th March** for non-sponsored and **26th March, 1987** for sponsored candidates.

Project Director (Exam.)
Association of Indian Universities,
AIU House, 16 Kotla Marg,
New Delhi - 110002

National Seminar on Physical Fitness & Sports Standards in Universities

The Association of Indian Universities will organise, in collaboration with the Mohan Lal Sukhadia University, a National Seminar on Physical Fitness and Sports Standards in Universities on 9-10 May 1987 at Udaipur.

The climate generated by IX Asian Games in 1982 at Delhi had raised our hopes and it was expected that India was on the way to greater achievements in international sports. The subsequent developments, especially the poor performance of Indian sportsmen at the international competitions, have proved it otherwise. "What ails Indian Sports?" is being debated everywhere, and the urgency for improving standards in sports and physical fitness is realised in every quarter.

The National Policy on Education has also emphasised the need for making sports and physical education an integral part of the curriculum in schools and colleges. A nationwide infrastructure for physical education, sports and games should be built up into our educational edifice. What the country really needs is a system which can promote an integrated development of body and mind. One of our major weaknesses has been that the schools, colleges and universities have not played their roles effectively in this direction. Most of them lack resources, their infrastructure is inadequate or sub-standard and sports facilities are scarce. Indeed, sports appears to have been placed in the lowest priority in the total scheme of school and college education. The utter neglect of the physical efficiency of our youth in educational institutions and non-availability of resources for sports have been responsible for this sorry state of affairs. It is proposed to identify various problems which impinge upon the sports performance and to deliberate on issues that have significant bearing on mass awakening and motivation for promoting sports and physical education.

Themes

The deliberations at the Seminar will cover the following themes:

1. Sports Infrastructure in Rural and Urban Areas

The discussion will focus on the availability and requirement of sports facilities in different areas—urban and rural, humid and dry, plains and hills. The provision of minimum unit requirements of facilities, depending upon the popularity of various games and sports in the specific areas, will also be discussed.

2. Student Motivation and Incentives

To encourage mass participation of youth in sports activities, it is imperative to motivate them through a chain of incentives like scholarships, bursaries, freeships, and special diet allowances. The feasibility of making sports an academic discipline, preferential treatment in job opportunities and related question of raising the status of physical education would be debated.

3. Coaching and Competitions

For success in sports competitions, coaching plays a crucial role. The discussions under this theme would focus on the assessment of the present system of coaching for national and international competitions. The question of evolving a core curriculum for physical education, the standardisation of syllabi and its adoption throughout the country will be discussed. The scheduling of the domestic competitions would also be reviewed.

4. Linkages between Sports and General Education

The need for providing effective linkages between sports and general education on the one hand and sports activities in schools with the colleges/universities on the other, cannot be under-estimated. While the schools are primarily responsible for providing the basic inputs to the sports requirements of the higher level institutions, the latter are responsible for improving the efficiency and proficiency in sports in schools by way of providing highly trained instructors and coaches. Ways and means of establishing such linkages would be explored so that the goals envisaged in the New Educational Policy are realised.

5. Norms of Physical Fitness

A minimum level of physical fitness is necessary for any individual to effectively participate in any game or sports and, in the larger context, to be a good all-round student. The methods of improving general health and the question of specifying norms of physical fitness for different age groups of students and for various games will be debated. Modern concepts of sports science will also be discussed.

PROGRAMME

May 9, 1987 (Saturday)

Registration of Delegates	9.00 A.M.
Inauguration & Exhibition	10.00 A.M.
Session I	11.15 A.M.
Session II	2.30 P.M.

May 10, 1987 (Sunday)

Session III	9.00 A.M.
Session IV	11.15 A.M.
Session V	2.30 P.M.
Valedictory Function	5.15 P.M.

VENUE

The venue of the seminar will be Mohanlal Sukhadia University, Udaipur.

PARTICIPATION

Delegates from universities, colleges, organisations dealing with sports and physical education, Department of Youth Affairs and Sports, Netaji Subhash National Institute of Sports, Lakshmibai National College of Physical Education and Sports Authority of India are invited to participate in the seminar.

Name with designation and postal and telegraphic address of the sponsored delegates should reach the Convener not later than **31st March, 1987**.

EXHIBITION

An exhibition of literature on sports and physical education such as books, magazines, journals, charts, models and other materials which might present the recent advances in sports science and sports medicine will be organised on the occasion.

PAPERS

Papers, in duplicate, neatly typed on one side of the quarto bond paper in double space, not exceeding 2,500 words and accompanied by a summary in not more than 300 words, should reach the Convener latest by **31st March, 1987**. The papers should not have been published or presented at any previous seminar or conference.

The official langugage of the seminar will be English. Further details can be had from the convener.

CONVENER

Shri G.S. Sivia
Deputy Secretary (Sports)
Association of Indian Universities
AIU House, 16 Kotla Marg
New Delhi - 110 002.
Telegram : "ASINDU"
Telephones 3312305, 3313390,
3312429, 3310059.

BHARATHIDASAN UNIVERSITY

TIRUCHIRAPALLI-24

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APPLICATIONS in the prescribed form are invited for the following Post on or before **23-3-87**.

Name of the Post	No. of Post.	Qualifications and Experience
REGISTRAR **Scale of Pay :** (Rs. 1500-60-1800-100-2000-125/2-2500 with usual allowances)	One	Applicants should possess high academic qualifications and rich administrative experience, and not below the rank of Professor of an affiliated College, preferably with knowledge of University administration. (**Age:** should not have completed 55 years).

NOTE:

1. The appointment is on contract basis for a period of three years in the first instance.
2. Those who are in service and willing to be considered for appointment to the above post on deputation basis are required to submit their applications through proper channel.
3. Age and qualification are relaxable in the case of otherwise exceptionally qualified and experienced candidates.
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REGISTRAR

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
March 23-27, 1987	Short term Course on Base Metals Identification and Delineation through Satellite Remote Sensing	To acquaint the participants with the techniques of Image Processing and Digital Analysis of Landsat Data with special emphasis on the application of techniques to the fields of Water Resources, Pedology, Forestry, Earth Sciences and Mineral Resources	Centre of Studies in Resources Engg., IIT, Bombay.	Dr. T.V. Pavate, Chief Project Engineer, Training Extn. & Project Cell, R.S.. No. VI, C.S.R.E., Indian Institute of Technology, Powai, Bombay.
March 26-27 1987	Seminar on New Education Policy	To evaluate the New Education Policy and Programme of Action documents	Zakir Husain Centre for Educational Studies, Jawaharlal Nehru University, New Delhi.	Dr. (Mrs) Sushila Singhal, Associate Professor, Zakir Husain Centre for Educational Studies, JNU, New Delhi - 110067.
April 7-17, 1987	Introductory Course in Phonetics and Spoken English	To acquaint college and university teachers of English with the problems of English speech and pronunciation.	Central Institute of English and Foreign Languages, Regional Centre, Lucknow.	Prof. V.D. Singh, Course Director & Officer-in-charge, Central Institute of English and Foreign Languages, Regional Centre, Moti Mahal Campus, 2 Rana Pratap Marg, Lucknow-226 001.
May 9-10, 1987	National Seminar on Physical Fitness and Sports Standards in Universities	To identify various problems impinging upon sports performance and to deliberate on issues having significant bearing on mass awakening and motivation for promoting sports and physical education.	Association of Indian Universities (AIU) in collaboration with Mohanlal Sukhadia University, Udaipur.	Shri G.S. Sivia, Dy. Secretary (Sports), Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi - 110002.
September 6-19, 1987	International Seminar on University Administration	To consider the impact upon administration of changes in both the external and internal environment of universities and the development of appropriate styles, structures and management in administration	The British Council, London (to be held at the University of Salford, Salford, England)	Mr. Stuart R. Bosworth, Registrar, University of Salford, Salford, England M5 4WT.
November 16-20, 1987	Seventh National Symposium on Radiation Physics	To provide a forum for a collective discussion and identification of the emerging new directions in the field of Radiation Physics	Department of Physics, Mangalore University, in collaboration with the Indian Society for Radiation Physics	Dr. N. Lingappa, Convener, Programme Committee, NSRP-7 and Head, Department of Physics, Mangalore University, Mangalore.
November 26-28, 1987	International Seminar on Instrumental Methods of Electro-Analytical Techniques.	To provide a forum to research workers and practitioners for exchange of information and technical perceptions in instrumental methods of electroanalysis.	Indian Institute of Science, Bangalore.	Prof. M.H. Dhananjaya, Principal and Chairman of the Organising Committee, S.J. College of Engg., Mysore.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

ADDITIONS TO AIU LIBRARY

Anabtawi, Samir N. *Palestinian higher education in the West Bank and Gaza : A critical assessment.* London, KPI (c 1986) 94p.

Archambault, Reginald D., ed. *Philosophical analysis and education.* London, Routledge and Kegan Paul (c 1982) xii, 212p.

Bagley, Christopher and Verma, Gajendra K., ed. *Personality, cognition and values.* London, Macmillan (c 1986) ix, 229p.

Baine, David. *Selected topics in special education.* Delhi, Allied, 1986. vii, 153p.

Berstecher, Dieter, ed. *Education and rural development : Issues for planning and research.* Paris, Unesco : IIEP (c 1985) 233p.

Bines, Hazel. *Redefining remedial education.* London, Croom Helm (c 1986) 194p.

Branch, Kristi and others. *Guide to social assessment : A framework for assessing social change.* London, Westview Press, 1984. xv, 322p.

Das, Santosh Kumar. *Educational system of the ancient Hindus.* Delhi, Gian Publishing House, 1986. 508p.

Edmondson, William, comp and ed. *Age of access; Information technology and social revolution : Posthumous papers of Colin Cherry.* London, Croom Helm (c 1985) ix, 192p.

Fontana, David. *Teaching and personality.* New York, Basil Blackwell (c 1977) vii, 200p.

Kitchener, Richard F. *Piaget's theory of knowledge : Genetic epistemology and scientific reason.* London, Yale University Press (c 1986) ix, 230p.

Leon, Antoine. *History of education today.* Paris, Unesco (c 1985) 117p.

Malik, A.K. *Personality evaluation : Development of a multiphasic measure.* Delhi, Jainsons Pub. (c 1986) xii, 397p.

McGarvey, Brian and Swallow, Derek. *Microteaching in teacher education and training.* London, Croom Helm (c 1986) 205p.

Mialaret, G. *Introduction to the educational sciences.* Paris, Unesco (c 1985) 106p.

Mohd. Showeb. *Education and mobility among Harijans.* Allahabad, Vohra Pub., 1986. 161p.

Morris, Desmond. *Naked ape : A zooligist's study of the human animal.* London, Johathan Cape (c 1967) 176p.

Mugridge, Ian and Kaufman, David, ed. *Distance education in Canada.* London, Croom Helm (c 1986) vii, 317p.

Reeder, David A., ed., *Educating our masters.* Leicester, University Press, 1980. viii, 240p.

Roy, Walter. *New examination system—GCSE.* London, Croom Helm (c 1986) 169p.

Sapra, C.L. and Dudani, S.S., ed. *Education of the future : Management challenges.* Delhi, National Book Organisation, 1986. xiii, 182p.

Sen, Anima. *Chronometric analysis of intelligence : Some empirical evidence.* Delhi, Northern Book Centre, 1984. 32p.

Shavelson, Richard J. and others. *Evaluation of nonformal education programs : The applicability and utility of the criterion-sampling approach.* Hamburg, Unesco Institute for Education (c 1985) xv, 160p.

Solomonides, Tony and Levidow, Les, ed. *Compulsive technology : Computers as culture.* London, Free Association, 1985. 160p.

Sparkes, R.A. *BBC microcomputer in science teaching.* London, Hutchinson (c 1984) 395p.

Stover, William James. *Information technology in the third world: Can I.T. lead to Humane national development?* London, Westview Press, 1984. xiii, 183p.

Ward, Christine. *Preparing and using constructee-answer questions.* London, Stanley Thornes (c 1981) vii, 201p.

Wintle, Justin, ed. *Makers of nineteenth century culture* 1800-1914. London, Routledge and Kegan Paul, 1982. 709p.

Youdi, R. Vesituluta and Hinchliffe, Keith, ed. *Forecasting skilled-manpower needs : The experience of eleven countries.* Paris, Unesco : IIEP (c 1985) 259p.

Youngman, Frank. *Adult education and socialist pedagogy.* London, Croom Helm (c 1986) 273p.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

HUMANITIES

Philosophy

1. Goel, Bhushan Kumar. *Vedic samhitaon aur Vishnu Puran mein Vishnu ke swarup ka tulnatmak adhyayan.* Punjabi.

2. Gupta, Satvir. *Rishi Dayanand va Mahatma Gandhi ke samajdarshan ka tulnatmak adhyayan.* Meerut.

3. Gurnam Kaur. *Reason and revelation in Sikhism.* Punjabi.

Fine Arts

Architecture

1. Misra, S.N. *Determinants of cohesiveness in urban residential neighbourhood.* IIT, Kharagpur.

Drawing and Painting

1. Mittal, Ragini. *Jodhpur shaili ke chitron ka sameekshatmak adhyayan.* Meerut.

Music

1. Mathur, Vinita. *The comparative study of Western and Indian music.* Rajasthan.

2. Sharma, Indira. *Ceremonial music in Western U.P.* Meerut.

Language and Literature

English

1. Banerjee, G.S. *Transcendental and democratic trends in Whitman's poetry.* NBU.

2. Eliah, P. *Mark Twain's concept of man and his institutions.* IIT, Delhi.

3. Ghosal, Madhumita. *The mind and art of Kamala Markandaya.* Nagpur.

4. Gossain, Brij Bhushan. *Five novels of Saul Bellow: An existential perspective.* HP.

5. Gowri, C.G. *The Halcyon Mind: A consideration of some essays and poems of Ralph Waldo Emerson with special reference to the theme of man's quest for transcendence.* IIT, Delhi.

6. Jit Pal. *Anti-Hero in the American drama after World War II,* 1945-1970. Panjab.

7. Lakshmi Devi, Kurma. *A critical study of Anita Desai's fiction.* Andhra.

8. Ponnaiya, Laddie. *Stasis in the works of Samuel Beckett: A study.* Bangalore.

9. Sharma, Yogesh Kumar. *Influence of the Bhagvad Gita on Matthew Arnold.* Meerut.

10. Singh, Surendra Pratap. *The poetry of Wallace Stevens:. A study in poetic technique.* Avadh.

Russian

1. Gupta, Meeta. *Problems of translation of titles from Russian into English: On the basis of newspaper, literary and scientific materials.* JNU.

Sanskrit

1. Barnawal, Sadhana. *Grihyasutron mein ayurvediya samagri.* BHU.

2. Hari Singh. *Bhavbhuti ke natakon ka darshnik evam sanskritik anusheelan.* Panjab.

3. Jha, Ramanand. *Apamarg ka chikitsatmak adhyayan.* Darbhanga.

4. Ojha, Rama Devi. *Kularnavatantra ka parisheelan.* Avadh.

5. Ramachandra Pal. *Sricatta Upadhyay: The famous Smarta digest writer: His life and works.* Calcutta.

6. Sharma, Dev Dutt. *Ban Bhatt ke kavya mein Shiv dristi: Ek sameekshatmak adhyayan.* Panjab.

7. Sharma, Krishna Kumar. *Somyagon ka adhyayan: Atiratra aur uske karamkandon ke vishesh sandarbh mein.* Meerut.

8. Sharma, V. Hanuman. *A study of the works of Rajasekhara* Osmania.

9. Shastri, Sarala. *Brihachchhabdaratnakar Laghushabdaratnakarayoh Matattwe Vimarshah.* BHU.

10. Shrivastav, Mahanya Prasad. *Bhamah Dandi: Ek tulnatmak adhyayan.* Avadh.

11. Shukla, Sunil Shankar. *Ujjwal Neelmani ke vishisht saudarbh mein bhaktiras.* Avadh.

12. Shukla, Vijay Kumar. *Itihas aur puranon mein Arjun.* Avadh.

13. Shukla, Vijaylakshmi. *Halkrit Gatha Saptashati tatha Goverdhanacharya krit Arya Saptashati ka tulnatmak adhyayan.* Avadh.

14. Shukla, Vijaylakshmi. *Kavi Karanpur Ravirachit Chaitanyachandrodaya natak ka natyashastriya adhyayan.* Avadh.

15. Singh, Shyam Dulari. *Pandit Raj Jagannath ke kavyon ka anusheelan.* Avadh.

16. Surekha Shree, Sadhvi. *Jain darshana mein samyaktva ka swarupa.* Rajasthan.

17. Tara Devi. *Taittiriyopanisad: Alochanatmak adhyayan.* BHU.

18. Thakur, Radhakant. *Rupashtgrah sadhanopyogi sidhant sameeksha.* Darbhanga.

19. Thakur, Ram Sakal. *Adikavi Balmiki kee dharmshastriya drishti: Ek adhyayan.* Darbhanga.

20. Tripathi, Vandana. *Prabhakar Mimansa darshane parman vimarsh.* HS Gour.

21. Vimla Devi. *Rigved ke chaturtha Mandal ka sanskritik tatha ayurvedic adhyayan.* BHU.

Pali

1. Barua, Sukomal. *Psychological attitude: A study of mind in early Buddhist tests.* BHU.

2. Meshram, L.G. *Baudh dharam ke vikas mein Dr. B.R. Ambedkar ka yogdan.* Nagpur.

3. Singh, Arun Kumar. *Buddh manava evam atimanava: Ek anusheelan.* BHU.

Punjabi

1. Kamlesh Rani. *Guru Nanak Bani mein samajik aur sanskritik chetna.* JNU.

2. Satish Kumar. *Prof. Pooran Singh dee kavita da suhajatmak vivechan.* Punjabi.

3. Udari, Charanjit Singh. *Pragtivadi sahityik lehar de sandarbh vich Punjabi niki kahani da alochanatmak adhyayan.* Panjab.

Hindi

1. Asha. *Kalidas ke kriya roop: Ek bhashik adhyayan.* HP.

2. Desh Raj. *Premchand sahitya mein patra-namon tatha sthannamon ka bhasha vaigyanik adhyayan.* Meerut.

3. Dubey, Arti. *Bundeli ka vyakarnik anusheelan.* HS Gour.

4. Grewal, Jaskiran Kaur. *Historical novels in modern Hindi literature: A study in sociology of literature.* IIT, Delhi.

5. Gupta, Meenakshi. *Mawana Tehsil kee boli ka shabdvaigyanik adhyayan.* Meerut.

6. Gupta, Ramkaran. *Swatantrayottar lalit nibandh aur nibandhakar.* Vikram.

7. Kapoor, Vijay. *Nai kavita ke akhyatmak kavya ka alochnatmak adhyayan.* Meerut.

8. Mamoria, Archana. *Ram kavya parampara mein prakriti chitran: Ramayan, Raghuvansh, Payum Chariya evam Payumchariyu, Adhyatma Ramayana, Ramcharitmanas aur Ramchandrika ke sandarbha mein.* Meerut.

9. Mishra, Vijaya Shanker. *Astham dashak ke pratinidhi Hindi upanyason ka samaj vaigyanik adhyayan.* BHU.

10. Narayan, Pushpa. *Sanskritik Divparshvikta ke sandarbh mein bhaktikavya ka anusheelan.* Panjab.

11. Pandey, Triyogi Narayan. *Bhojpuri lok sahitya mein prem.* Awadhesh.

12. Pathak, Bachau Prasad. *Nirala kavya mein atmavibhakti ke swarup.* BHU.

13. Rakesh Kumar. *Bihari Satsai ka arth vaigyanik adhyayan.* Meerut.

14. Rakesh Kumar. *Kavya bhasha ke roop mein Braj bhasha ka udbhav aur vikas: Prarambha se bhakti kal ke ant tak.* Meerut.

15. Rastogi, Basant Rai. *Shabad shaktiyan aur chhayavadi Hindi kavya mein unka prayog.* **D. Litt.** Rohilkhand.

16. Sharma, Nirmala. *Sharat evam Jainendra ke upanyason mein vastu shilp.* Avadh.

17. Sharma, Savita. *Dr. Ram Kumar Verma ke kavya mein prem va saundarya chetna.* Meerut.

18. Sharma, Surendra Kumar. *Ramcharitmanas ka sameekshatmak adhyayan: Shabad-shaktiyon ke sandarbha mein.* Meerut.

19. Singh, Dharma Pal. *Dinker ke sahitya mein rashtriyata evam antarrashtriyata.* Meerut.

20. Singh, Santosh. *Jaisi ke Padmavat aur Varis Shash kee Heer ka tulnatmak adhyayan.* Meerut.

21. Srivastava, Mahesh. *Satven dashak ke upanyason mein Mahanagariya jeevan.* Osmania.

22. Sukhbir Kaur. *Swatantrayottar Hindi ke pramukh natakon mein nari.* Punjabi.

23. Sukhpal Singh. *Adhunik sandarbha mein Tulsidas ka adhyayan.* Meerut.

24. Veena Rani. *Adhunik Hindi kavita mein alagao-bodh, 1950-1970.* Panjab.

25. Yadava, Parkash Vati. *Swatantrayottar Hindi mahakavyon mein nayak parikalpana.* Panjab.

Urdu

1. Nasim Ahmad. *Deewan-E-Ghazaliyat-I-Sanda: Tahqeeq-o-tadween.* BHU.

Bengali

1. Chowdhury, Jahagir. *Mir Mosharaf Hossain: Jibon-o-shahitya.* Calcutta.

2. Datta, Pradosh Kumar. *Rupkathar gathan baichitra-o-bhasha baisistya.* Calcutta.

Oriya

1. Mishra, Dinabandhu. *The evolution of satire in Oriya poetry.* Utkal.

2. Nanda, Indira. *A study of the role of education as reflected in the 16th century Oriya literature.* Utkal.

3. Ojha, Tulashi. *Characters in Oriya drama: Its development and analysis.* Utkal.

4. Sarangi, Prabir Kumar. *The American novelist Hawthore and the Oriya novelist Fakir Mohan: A comparative study.* Utkal.

Gujarati

1. Patel, Hasmukh Dasaibhai. *The usage and application of images and symbols in post independence Gujarati poetry.* S. Gujarat.

Kannada

1. Jayachandra, M.A. *Prachina Kannada jaina sahityadalli janapada kathegaluondu adhyana.* Bangalore.

Telugu

1. Lakshmi Narasamma, Sista. *Streela Patalu: Oka pariseelana.* Andhra.
2. Ramulu, B. Jaya. *Andhra prabandhamulu: Sringaramu prayogamulu.* Hyderabad.
3. Subrahmanyam, P.S. *Dravidian comparative phonology.* **D. Litt**. Andhra.
4. Venkata Rami Reddy, A. *Andhra prabandha yuga alamkara prasthana prayoga.* Hyderabad.

Geography

1. Aji Pal. *New trends in agriculture and problems of integration in Sikandrabad Tehsil District Bulandshahr.* Meerut.
2. Gupta, Shobha. *The geographical study of small scale industries in Bhopal Division.* Bhopal.
3. Rabinder Kaur. *Green revolution and socio-economic transformation of the country side in Panjab: A social geographical analysis.* Punjabi.
4. Ray, Sutapa. *Terrain analysis of the Kangaabati Basin and its impact on sand use.* Calcutta.

History

1. Atlury Murali. *Social change and nature of social participation in national movement in Andhra, 1905-1934.* JNU.
2. Bhardwaj, Nirmal. *Some important Hindu Zamindaris during the 17th century in Upper India: A case study of the socio-economic life of Amber and Bikaner.* Jamia.
3. Dubey, Anil Kumar. *Shivpuri Jile ka puratatva: Ek samalochanatmak adhyayan.* Bhopal.
4. Jigar Mohammad. *A study of Madad-i-Maash grants in the Suba of Awadh under the Mughals,* 1658-1765. Jamia.
5. Khare, Daljeet. *A study of central Indian miniature painting, 16th to 19th century.* Bhopal.
6. Madhudevan Nayar, R. *Travancore under Sir T. Madhava Rao,* 1858-1872. Kerala.
7. Mathur, Anju. *Socio-economic condition of the rural areas of Meerut District,* 1918-1947. Meerut.
8. Padhi, Brundaban Chandra. *Studies in the history of Koraput District during the British rule,* 1803-1936. Utkal.
9. Panda, Harish Chandra. *The British policy towards the Orissan Princely States during the first half of the nineteenth century: Angul, A case study.* Utkal.
10. Pani, Susmita Prasad. *Sri Aurobindo: A study of his thought in a historical perspective.* Utkal.
11. Parida, Asoknath. *Early temples of Orissa from the 6th century A.D. to the end of Somavansi rule.* Utkal.
12. Pawan, Usha. *Archival institutions in North India with special reference to national archives of India.* Rajasthan.
13. Pradhan, Krishnlal. *Brian Hoggson at the Kathmandu Residency,* 1825-43. NEHU.
14. Sema, Puketo. *British policy and administration in Nagaland,* 1881-1947. JNU.
15. Shrivastava, Vishnu Shankar. *Angkorkaleen abhilekhon ka dharmik adhyayan.* Magadh.
16. Thakkar, Rameshchandra Jivanlal. *Chittor Fort and some other important (Brahmanical) Iconographical centres in Mewar: Their image, content and its significance.* Patel.
17. Tiwari, Satya Narain. *The role of the business community in Rajasthan,* 1850-1947. Rajasthan.

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ADMISSION NOTICE 1/87

Applications on prescribed form are invited for the following post graduate/post-doctoral courses etc. for the academic session starting from **1st July, 1987** :—

I. **First Year Junior Residents (for MD/MS Courses)** in the following subjects:

(a) **Clinical Group — 47**

Anaesthesia (6), Dermatology (1), ENT (1), Medicine (8), Obst. and Gynae, (4), Paediatrics (4), Psychiatry (4), Ophthalmology (1), Orthopaedic Surgery (3), Radio-Diagnosis (2), Radiotherapy (1) and Surgery (12).

(b) **Para Clinical Group — 15**

Microbiology (2), Pathology (7) and Pharmacology (6)

(i) Those completing their internship after **30-6-87** are not eligible.

(ii) Candidates can apply for a maximum of two subjects in clinical group. They may apply for any number of subjects in para clinical group. Only one application needs to be submitted. The choice of subjects may be mentioned in the relevant column of the application. Application fee is Rs. 30/- per subject.

(iii) 22½% of the seats in each of the above mentioned groups are reserved for candidates belonging to Sch. Castes/Tribes. In addition, 5% seats will be reserved for candidates who have served or are serving or have carried on private practice in rural areas for a minimum period of two years.

(iv) A limited number of sponsored/deputed candidates may also be accepted for the courses mentioned above.

II. **Senior Residents — 18 (for D.M./M. Ch. Courses)** in the following subjects:

D.M.		**M. Ch.**	
Cardiology	— 2	Neuro-Surgery	— 2
Clinical Pharmacology	— 2	Paediatric Surgery	— 2
Endocrinology	— 1	Plastic Surgery	— 1
Gastroenterology	— 3	Urology	— 2
Nephrology	— 2		
Neurology	— 1		

(i) One post each in the subjects of Gastroenterology and Neuro-Surgery is reserved for candidates belonging to Sch. Castes/Tribes.

(ii) A limited number (1-2) of sponsored candidates may also be accepted in all the above mentioned subjects except Urology. Such candidates may also be accepted for M. Ch. (Cardiovascular and Thoracic Surgery) course.

(iii) Upper age limit on **1-7-87** — 35 years for general candidates and 40 years for those belonging to Sch. Castes/Tribes.

(iv) Candidates appearing in MD/MS examination during April/May. 1987 may also apply. They will, however, be eligible to appear in the selection test only if they furnish the result of their examination from the University concerned before the selection test.

III. **Ph.D. Programme**

Vacancies exist in the following departments :

Anaesthesia. **Biochemistry**, **Biophysics**. Community Medicine, Cardiology, **Dermatology**, Endocrinology, Experimental Medicine, Gastroenterology, **Haematology**. Orthopaedic Surgery Microbiology. Psychiatry including clinical Psychology, Paediatrics. Parasitology and Pharmacology.

IV. **Second Year Junior Residents — 3 (for MDS Part I)** course in the speciality of Pedodentia and Preventive Dentistry. In addition, one sponsored/deputed candidate may also be accepted.

V. **Diploma in Blood Transfusion and Immunohaematology.**

VI. **M. Sc. Medical Technology (Pathology) with Morbid Anatomy or Immunopathology or Cytology as a special subject.**

VII. **M. Sc. Medical Technology (Microbiology) with Bacteriology or Parasitology or Virology as a special subject.**

VIII. **M.Sc. Medical Technology (Pharmacology and Physiology)**

IX. **M.Sc. Medical Technology (Biochemistry)**

X' **M.Sc. Medical Technology (Radiology) with Radio-Diagnosis or Radiotherapy as a special subject.**

XI. **First Year Junior Residents — 3** for the department of Dentistry for a period of 6 months. One post is reserved for a candidate belonging to Sch. Castes/Tribes. Those who have already completed or will complete First Year Junior Residency or House Job for one year by **31-7-87** are not eligible.

CLOSING DATE FOR RECEIPT OF APPLICATIONS IS 31-3-1987.

General Information

1. Candidates other than those belonging to Sch. Castes/Tribes having more than one failure during MBBS (for category I) and BDS (for categories IV and XI) career are not eligible. Sch. Castes/Tribes candidates with upto two failures in their MBBS/BDS career will be eligible.
2. Those applying for the reserved seats must append, with their applications, a certificate from the District Magistrate concerned in support of their claim. No other certificate will be entertained.
3. For courses at categories V to X only sponsored/deputed candidates will be considered.
4. No upper age limit for sponsored/deputed candidates.
5. The courses at categories IV and V are conducted under the Panjab University.
6. The number of vacancies indicated in categories I, II, IV and XI is provisional and is subject to change without prior notice.
7. The application must be accompanied with non refundable fee of Rs. 3/- in the form of postal order drawn in favour of the Director for each of the courses mentioned above. A candidate applying for more than one subject/course is required to submit separate application for each subject/course, except for category No. 1.
8. Application form and detailed information are available from the office of the undersigned either personally on payment of Rs. 5/- at the counter from 11 A.M. to 12 Noon and 3 P.M. to 4 P.M. on all working days or by post for which the request must be accompanied with a self addressed envelope size (23 x 10 cms) bearing postage stamps of Rs. 3.40 and crossed postal order for Rs. 5/- drawn in favour of the Director.

REGISTRAR

CLASSIFIED ADVERTISEMENTS

CENTRAL DRUG RESEARCH INSTITUTE

(Council of Scientific & Industrial Research)

Chattar Manzil Palace, Lucknow-226001.
Advertisement No. 3/87

Applications are invited for the following positions in the ICMR Centre for Advanced Pharmacological Research on the "Selected Traditional Remedies" (Under Dr. B.N. Dhawan, Sc. in Director's Grade) tenable at Central Drug Research Institute, Lucknow:

(1) **Research Associate : 1** position. (Rs. 1400/p.m. fixed stipend).

Qualifications and Experience :

M.D. or Ph.D. in Pharmacology or a related discipline with a consistently good academic record and about 3 years research experience in Pharmacology. Preference will be given to person having experience in Immunopharmacology/Immunology.

Upper Age Limit :- Below 40 years.

(2) **Senior Research Fellow :** 1 position. (Stipend of Rs. 1200/- p.m. fixed for candidate with medical qualification and Rs. 950/- p.m. fixed for others.)

Qualifications and Experience

MBBS, MV Sc. or M. Pharma with Pharmacology or M.Sc. (Zoology, Biochemistry or Pharmacology). The candidate must have a good academic record. The MBBS candidate should have completed the internship and others should have about 3 years research experience in Pharmacology. A Junior Research Fellowship may be offered to candidates not having requisite experience but otherwise suitable.

Upper Age Limit : Below 35 years.

Candidate wishing to be considered should come for an interview on 17th March, 1987 at 10.00 A.M. They should bring original certificates of educational qualifications and experience and reprints of published papers etc. alongwith the application with them.

INTERIM INQUIRIES WILL NOT BE ATTENDED TO.

MEERUT UNIVERSITY

MEERUT

Applications are invited for the following teaching Posts. The application on prescribed form should reach the Registrar, Meerut University, Meerut - 250005 latest by **3-4-1987.**

(A) One post of Professor of Sociology in the Grade of Rs. 1500-60-1800-100-2000-125/2-2500.

Minimum Qualifications

1. An eminent scholar with published work of high quality, actively engaged in research. Ten years experience of teaching or research. Experience of guiding research at doctoral level.

OR

2. An outstanding scholar with established reputation who has made significant contribution to knowledge.

(B) One Post of Reader in Botany (Leave vacancy) in the Grade of Rs. 1200-50-1300-60-1900.

Minimum Qualifications

1. Good academic record with doctorate degree or equivalent published work and active engagement in research or innovation in teaching methods or production of teaching materials, and
2. Five years experience of teaching or research including at least three years as Lecturer or in an equivalent position.

   Provided that the requirement contained in clause (2) may be relaxed in the case of a candidate who in the opinion of the Selection Committee, has outstanding research work at his credit.

(C) Two posts of Lecturers in Agricultural Botany (Temporary but likely to continue and one post of Lecturer in Maths. (Leave vacancy) in the grade of Rs. 700-40-1100-50-1600.

Minimum Qualifications for the posts of Lecturers in Agricultural Botany.

M. Phil in First division, or a first class in High school, Intermediate, degree and postgraduate examination or first class postgraduate degree or M. Phil with a Ph.D. degree or an average second class career taking into consideration High School, Intermediate, Degree and Postgraduate Examinations with a Ph.D. degree.

Minimum Qualifications for the Post of Lecturer in Maths

1. (i) A doctor's degree or research work of an equally high standard in the relevant subject, and

(ii) Consistently good academic record with First or High Second class Master's degree or an equivalent degree of a foreign University in the relevant subject.

2. Where the Selection Committee is of the view that the Research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in 1-(ii) above.

Note: Other things being equal, preference will be given to the scheduled caste/tribe candidates who are considered fit. Such candidates should attached certificate to that effect from the District Magistrate.

Prescribed application form can be obtained by sending a request to the Dy. Registrar (Accounts), Meerut University, Meerut - 250005 along with a self-addressed envelope of size 23 x 10 cms. and stamped worth Rs. 1.80 accompanied by a Bank Draft of Rs. 15/- in favour of the Finance Officer, Meerut University, Meerut or by Cash Payment of Rs. 15/- at the Cash counter of the University.

I.P.Os or M.Os are not acceptable. While requesting for application form please mentioned "Application for Teaching Post" on the envelope.

Chander Bhan
REGISTRAR

MADURAI KAMARAJ UNIVERSITY

MADURAI-625021

Notification No. R/4/87

Dated : 24-2-1987

Applications in the prescribed form are invited for the following posts in the University:

1. One Professor of Commerce
2. One Professor of Library Science
3. One Professor of Education
4. One Professor of Statistics
5. Two Professors (i) Prof. in Algebra preferably commutative Algebra, Algebraic Geometry and (ii) Prof. in Analysis).
6. One Professor of Physics
7. One Professor of Chemistry to work at PG Extension Centre, Palayamkottai.
8. One Reader in Tamil
9. One Reader in Gurunanak Devji Chair
10. One Reader in Islamic Tamil Literature
11. One Reader in Economics
12. One Reader in Management Studies
13. One Reader in Environmental Studies (Energy Sciences)
14. One Reader in Algebra preferably commutative Algebra, Algebraic Geometry
15. One Reader in Computer Science and Applications
16. One Reader in Molecular Biology
17. One Reader in Plant Genetics
18. One Reader in Immunology
19. One Reader in Microbiology
20. One Professor/Reader in Chemical Engineering (Bio-Technology)

21. Three Subject Specialists/Reader under Biological Curriculum Development Centre.

Scale of Pay

Professor : Rs.1500-60-1800-100-2000-125/2-2500.

Reader : Rs. 1200-50-1300-60-1900.

Appointment of persons on deputation will also be considered, if the candidates are found suitable and the employer is agreeable to spare the services.

The prescribed form of application and full details regarding essential general and special qualifications and experience required can be got from the undersigned on requisition accompanied by :

(i) a self addressed envelope with postage stamps to the value of Rs. 5/40 ps affixed thereon; and

(ii) a State Bank of India challan for Rs. 10/- (Account No. 1 of the Madurai Kamaraj University) or Demand Draft for Rs. 10/- payable at Madurai drawn in favour of the REGISTRAR, MADURAI KAMARAJ UNIVERSITY, MADURAI-625021. MONEY ORDERS AND POSTAL ORDERS WILL NOT BE ACCEPTED.

The number of the notification should be quoted in the requisition i.e. No. R/4/87.

The last date for receipt of filled in applications is **31st March, 1987**. Applications received after the due date will not be considered.

P.P. Chinnadurai
REGISTRAR

REGIONAL RESEARCH LABORATORY
JORHAT : ASSAM

(Council of Scientific and Industrial Research)

Advertisement No. 3/87

Applications in the prescribed forms (available free of cost from the Administrative Officer, Regional Research Laboratory, Jorhat-6, Assam on sending a self addressed big envelope affixing 0.45 paise stamp with a written request stating advertisement number and name of the post) are invited from candidates for the following position for RRL-Jorhat-6.

Scientist 'C'—1 post (Number of post may vary)

Rs. 1100-50-1600 (Pay scale is being revised as per 4th Pay Commission award.)

EQ:—A first class B.E./B. Tech. in Chemical Engineering with six years experience or M.E./M. Tech./M.S. in Chemical Engineering with four years or Ph. D. (Chemical Engineering) with two years experience having specialization in any of the following fields : Chemical Reaction Engineering, Modelling & Simulation of Chemical Process Systems, Process control and Instrumentation, Rheology of polymeric materials.

JR:—The candidate will work on process development and kinetics, modelling and simulation studies of gas liquid/phase transfer catalyzed/gas-solid reactions with adequate knowledge of Computer programming (FORTRAN-IV), Scale up criteria for unit operation-processes and Applied Mathematics.

GENERAL

1. Higher starting salary may be given to exceptionally qualified and experienced candidates on the recommendation of the Selection Committee.

2. In addition to basic pay, dearness allowance is admissible as per CSIR rules in force. Total emoluments at the minimum of the scale will be Rs. 2750/-. Free medical treatment, leave travel concession, Pensionary benefits etc. are also admissible as per rules.

3. Persons who are already in Govt./Semi-Govt. organisation should apply through proper channel. Candidates are required to specify and attach documentary evidence (attested copies) of EQ and exp. claimed.

4. The application in the prescribed form together with crossed Postal Order of Rs. 8/- payable to the Director, R.R.L. Jorhat-6 (Assam) should reach him by **31-3-87**. S.C./S.T. candidates need not pay any fee (IPO) along with their applications.

Applications received after this date will not be entertained. Candidates called for interview will be paid 2nd class railway fare by the shortest route for the to & fro journey.

5. Since it is not possible to call all the eligible candidates for interview/personal discussion, the applicants to be shortlisted for the purpose and the decision of the Council/Laboratory will be final in this regard.

6. INDIAN CANDIDATES APPLYING FROM FOREIGN COUNTRY MAY SEND THEIR APPLICATIONS UPTO A FORTNIGHT AFTER CLOSING DATE IN STANDARD APPLICATION FORM SUPPLIED BY OUR MISSIONS ABROAD AND WITHOUT APPLICATION FEE.

7. Canvassing in any form and/or bringing in any influence, political or otherwise, will be treated as disqualification for the post(s)

INTERIM INQUIRIES WILL NOT BE ATTENDEDTO

UNIVERSITY OF CALICUT
CALICUT-673635

(Administration 'F' Section)

No. Ad. F2/3014/84 **Dated 23-2-1987**

NOTIFICATION

Applications are invited from qualified candidates for appointment to the post of University Librarian in the University of Calicut. The post carries the scale of pay of Rs. 2250-3350 and usual allowances:

2. **Qualifications**

(a) First or Second Class M. Lib. Science or M.A./M.Sc./M.Com. plus a first or second class B. Lib. Science or Diploma in Library Science.

(b) At least 10 years' experience as Librarian or in a responsible professional capacity in a University Library.

(c) Ph.D. Degree or equivalent research work in the field relevant to the profession.

3. **Age**

Not more than 45 years as on 1-1-1987.

4. Application on plain paper containing details of qualifications, experience, age, etc. alongwith attested true copies of relevant certificates/testimonials and a challan receipt for Rs. 50/- for remittance made into the State Treasury to the Credit of 843(e) P.D. Account of Finance Officer (for remittance made in the Treasury in Malappuram District) or to the credit of 858(B) 4(1)B CUS for remittance in all other state treasuries in the Kerala State towards application fee should reach the undersigned on or before **4-4-1987**.

Dr. S. Balaraman
REGISTRAR

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House,
16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429.
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

University News

APR 1987

MONDAY, MARCH 16, 1987

Rs. 1.50

Yugoslav Varsities' Vice-Chancellors with AIU Secretary Dr. Jagdish Narain (second from right in the second row) when the former visited AIU House recently.

AIDS
HOW TO PROTECT YOURSELF

AIDS is a dangerous disease and so far there is no known cure fot it. So there are lot of rumours about it. But it is not difficult to protect oneself from it, provided some facts about it are understood.

WHAT IS AIDS?

AIDS stands forAcquired Immuno-Deficiency Syndrome. It is caused by a virus that destroys the body's natural defence system.

HOW IT SPREADS?

The only likely way for someone to catch the AIDS virus is from the blood or semen from an infected person to get inside his or her body.

Most people get AIDS virus by having sex with an infected person. The rest have it by injecting themselves using needles shared with an infected person as happens commonly among the drug addicts. Only rarely transfusion of blood from an infected person have been responsible for its spread.

Not everyone who carries the virus develops AIDS. In fact most will not. But anyone who has the virus can pass it on, even if they feel and look completely well.

YOU DO NOT GET AIDS FROM

— Normal social contact such as shaking hands, touching and hugging.

— Swimming pools, restaurants and other public places.

— Coughs, sneezes and spitting.

— Clothing.

— Toilet seats, door knobs, food, glasses and cups.

YOU DO NOT CATCH AIDS WHEN YOU :

Donate blood.

Have injections or any other treatment from your doctor, dentist or any other health care worker.

WHAT YOU SHOULD AVOID?

— Casual sex with strangers. It is always risky. You may not know that the stranger is an infected person.

— Anal sex. It involves the highest risk and should be avoided.

— The more the sex partners, the more the risk.

— Sharing injection needles with drug addicts.

REMEMBER

AIDS is not a disease to take risk with. There is no cure. AIDS control depends on how people behave.

FOR MORE INFORMATION:

You may write to Asstt. Director General (AIDS), Directorate General of Health Services, Nirman Bhavan, New Delhi—110011

YOU CANNOT CURE AIDS, BUT YOU CAN CERTAINLY AVOID IT

Issued by. CENTRAL HEALTH EDUCATION BUREAU
DGHS, KOTLA ROAD, NEW DELHI—110002.

davp 86/302

7 APR 1987
MYSORE

UNIVERSITY NEWS

VOL. XXV MARCH 16
No. 11 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor :
SUTINDER SINGH

Reorienting Agricultural Education

N.G.P. Rao*

OBJECTIVES

The early history of agricultural colleges in USA during 1870-1890 was elegantly analysed by Alan I. Marcus (1985) in his book "Agricultural Sciences and the Quest for Legitimacy". The farmers then felt that the Agricultural Colleges should teach young people how to be successful farmers instead of teaching science, conducting experiments and worse providing an academic education.

The role of science in the creation of modern agriculture needs no elaboration. Our agricultural education should have the right mix of science, technology and orientation towards rural skills and needs. The Seventh plan's emphasis is on improving agricultural productivity, food security and employment generation. Programmes of agricultural research and education should, therefore, be oriented to develop human resources and prepared to strive towards accomplishing national goals:

— increasing productivity and efficiency in agriculture and to be prepared to meet the consequences in market economy;

— generation of productive employment through intensive agriculture and agro-industrial activity;

— concern for the nutrition, health and well-being of agricultural producers and consumers;

— understanding the impact of new agricultural practices on the environment and strive towards a better eco-system; and

— better quality of life for rural communities.

EDUCATIONAL PLANNING

The educational system should generate new knowledge, evolve principles, methodologies and guidelines for the application of knowledge to solve problems of agricultural development. Research and extension are, therefore, essential ingredients of the educational process, rightly built into the agricultural university system.

Science, Technology and Technology Transfer

Science primarily aims at search for new knowledge and technology relates to its utilization for the benefit of mankind. Historically, countries that developed strong schools of basic and supporting sciences were able to develop a good technological base. Those that imported technology without a scientific base could not sustain the imported technology since there is no scientific back up. In the area of agricultural sciences, we in India should be proud that we have been able to take immediate advantage of international developments and sustain them through our own problem solving research.

**Vice-Chancellor, Marathwada Agricultural University, Parbhani.*

Biology is no longer a descriptive science. The ability to describe and manipulate molecules has made it possible to manipulate the critical elements at will and create versions of life that were never anticipated in natural evolution.

In the future, modernization of agriculture has to be backed up with highest sophistication in science. Apart from the applied research, our laboratories must be oriented towards excellence in basic sciences as well as transfer of technology. A genuine investment in basic research in plant molecular biology could reduce dependency on energy linked tillage, fertilization, irrigation, pest control and eventually agricultural costs. The culture of excellence must permeate down the line. Similar examples in other areas could be cited.

International Dimension

The scope of agricultural education is no longer confined to meet the state or country's needs. There is increasing recognition that the recent Indian experience in transforming our agriculture is vital for several developing countries.

Agricultural scientists from India man responsible positions in developed as well as developing countries. The products of contemporary agricultural colleges should be exposed to the developments and needs in the developed as well as developing countries. An understanding of international issues in agriculture is as important as national issues. Knowledge of the areas of deficits and surpluses can help to orient our agriculture towards export promotion. It has been said "we must study geography so that for us there is no foreign place. We must study humanity so that for us there is no foreign person. The students that are being prepared now should face careers which may show up decades later."

Human Resources Development

Some of the major problems that have a bearing and should be guarded against in human resources development have been cited as technological obsolescence, insufficient availability of technical manpower, migration of trained and experienced personnel, sustaining employee morale and combating low productivity, excessive government regulations, energy shortage, high competition, and cash flow and finances.

More interest needs to be generated in changing work culture and values in the coming times. Organisations may have to be concerned more and more on social obligations. Technology transfer will require proper assimilation in cultural context and values. Attitude training will have to be given high priority.

Planning Approaches

Modern educational planning is for a controlled change and hence organised as an integral part of social planning. Classical approaches of educational planning have taken (1) the manpower requirement approach, and (2) the social demands approach.

Education has largely been viewed as a state regulated commodity. It is now being increasingly looked at as a market regulated commodity. This still exists largely in terms of theoretical modules. It is necessary to weigh the advantages of various approaches and arrive at an optimal mix.

SOME LACUNAE

A panel on undergraduate education (1986) in science, mathematics and engineering in US institutions pointed out these areas for priority attention:

—Laboratory instruction is uninspired, tedious and dull and instrumentation and facilities were found to be obsolete and inadequate;

—Faculty members were unable to maintain their teaching skills, currency in their disciplines and command of new technology; and

—Courses and curricula were frequently out of date in content, unimaginative, poorly organised for students with different interests.

If this is so in USA, our position is certainly worse with regard to both undergraduate and postgraduate studies. We need to pay attention to these aspects and bring about corrective measures.

Teaching Methodologies

The teaching methodologies may be teacher managed or centered or student managed or centered. The present tendency is towards greater student involvement in the learning process. This recognises feedback, timing, learning media, speed of learning and varying need for repetition.

The outcome of learning is knowledge acquisition, recall, analysis, application learning and attitude change.

Each outcome requires a different teaching methodology. There are a number of methods and the business schools in particular are experimenting with novel methods.

The traditional lecture and textbook method, audio visual instruction, case studies, guided enquiry/activity method, computer aided instruction and business games are some of the more important methods. While the traditional lecture and textbook method is effective where the object is knowledge acquisition and recall, case studies and business games are effective for analysis and application. We need experimentation of the emerging methods.

The innovations in educational technologies should be taken advantage of and necessary aids like audio visuals and use of computer in education should be promoted.

Instrumentation

There is virtually a revolution in instrumentation and the universities should be supported. A few of the knowledgeable persons should prepare a list of items and funds provided for their procurement.

Courses and Curricula

The courses and curricula in agricultural sciences may be considered under appropriate modules. There has to be a balance between core courses and region specific and applied technology courses. A rational mix of basic sciences, social sciences, humanities, principles of applied sciences and regionally oriented technologies needs to be designed. This could bring about uniform standards at the national level and the products will be useful under local situations.

Faculty Upgradation

Presently some staff members go for higher degrees mostly within the country or attend summer institutes. Specifically designed programmes will be more useful. Training abroad in specialised areas is needed.

Finances

The challenge of better education has to be met under a resource gap.

RESTRUCTURING AGRICULTURAL EDUCATION

The concept of education is too vague to characterize. Two such attempts by R.S. Peters and John Wilson, both during 1979 have their own limitations.

Unlike the concept of education, the concept of schooling is less vague and is amenable to a more rational analysis. So, the principles of schooling, to a considerable extent exemplify the concept of education and provide a criteria in assessing the educational quality. The question, where are the leaders of tomorrow could be answered by, where are the nation building institutions of tomorrow? This naturally leads to the restructuring of schools and colleges.

The School

Agricultural education should pervade the entire high school education. Once the school child is well up with reading and writing skills, agriculture and related subjects should form a separate subject or form a major chunk of the biological science. Perhaps over a period of 5 years, commencing from the sixth standard, graded knowledge of the eco-systems of the region, the natural resources—climate, soils, crops, animals, aquatic systems, health, nutrition and efficient use of resources in the region with an economic perspective be developed and incorporated. The curriculum should be regionally oriented.

The+2 Stage

The present+2 stage provides the necessary options of sciences and vocational streams. For those entering degree programmes, a good grinding in life sciences and physical sciences is a must.

The Undergraduate

The recent report of the Committee of Deans on undergraduate education (1985) in Agricultural Universities in India tends to treat the Bachelor's degree as a terminal programme. No educational programme could be considered terminal. Considered in that light, the undergraduate programme could be designed to provide more options making it useful for those who seek occupations and those who choose to go for higher education. The following points need consideration:

There has been a tendency to underplay the need for basic science courses at the undergraduate level.

Our students need to be told about the National Agricultural Policy, our commitment to agricultural development, our agricultural resources—climate, soil, water, vegetation etc. and the need for their efficient use. They should be exposed to the concept of integrated land use planning.

There is no course that exposes students to the prevalent agricultural systems/farming systems in the country at large and in the region in particular. The relationships between sociology, economics, agronomy and geography need to be exemplified.

Apart from the subject-wise courses, there should be attempts to focus attention on identified priority areas such as, Population stabilization, Integrated land use planning, Healthy crop and grassland, Woodland regeneration, Conservation of biological diversity, Control of pollution in soil, water and atmosphere, Development of non-polluting renewable energy systems, Recycling wastes and residues, Ecologically compatible human settlements, Environmental education and awareness, and New dimensions to national security, particularly food security.

The design of an undergraduate curriculum may, therefore, comprise the following modules:

(a) Basic Sciences: Greater coverage of basic science courses, particularly, biochemistry including course in molecular biology; mathematics, statistics and computer programming; microbiology; ecology and eco-systems.

(b) Economics, social sciences and management: Courses in economics aimed at surveys, project planning, monitoring and appraisal for agricultural development with cost benefit ratios. They should also cover analysing existing farming systems, socio-economics of alternative technologies, field analysis of prospective technologies, issues in marketing, nature and significance of risk etc.

Courses in sociology aimed at bringing about attitude changes, greater national integration, identification of socio-economic constraints in agricultural development, human organisations to promote adoption of technology etc.

A couple of courses in principles of management and agricultural management could be useful. That social problems should be turned into economic opportunities, jobs and wealth should receive special attention.

(c) A set of discipline-wise core courses with emphasis on principles.

(d) A set of applied courses with greater orientation to application in the region.

(e) Greater choice of electives in the final year (applied package type suggested in the Dean's Committee report and advanced discipline courses depending upon attitude).

Items under (a), (b) and (c) could form the core and (d) and (e) could be designed at the institutional level. There have to be a few courses in languages and humanities.

The Post-graduate

There has been a growing feeling that the post-graduate degrees of several institutions in the country are becoming substandard and they do not compare with similar degrees from advanced countries. There is some truth in this and the content and structure of postgraduate courses need a relook.

In the emerging frontier areas of science which will have tremendous influence on future agriculture, several of the agricultural universities do not have bee even teaching capabilities, leave alone excellence, to expose the students to these emerging areas. Schools of basic sciences have been incorporated into the agricultural universities established earlier. Later no consideration was given to schools of basic sciences in the agricultural university system. In the context of current developments in biological sciences, it is necessary that every agricultural university should have a department of biochemistry, molecular biology, computer science, data processing and information retrieval, microbiology, genetics, agricultural meteorology and environmental sciences. There may not be separate basic science degrees, but there should be departments and enough teaching capabilities in these areas so that the postgraduate students are exposed to the recent developments. Certain amount of intake of students with basic science degrees into postgraduate programmes in agriculture is also a must and they could be offered some remedial courses. This interaction is very necessary. Similarly, students with degrees in agricultural sciences should have opportunities to pursue higher studies in traditional universities.

Agricultural sciences are becoming more and more inter-disciplinary. Yet, 'minors' are not receiving due attention at the M.Sc. and Ph.D. levels in several institutions. I fact, minors are not prescribed in some places. This needs to be rectified.

The concept of inter-disciplinary centres of excellence in selected areas be fostered in the agricultural universities and inter-disciplinary degree programmes initiated.

The Ph.D. programmes by course work and part thesis should be offered only in areas where sufficient expertise and facilities have been built up.

Specialised Institutions

(a) *Institutes of Agriculture* : In the context of fostering national integration, building up quality and excellence in higher education, the IITs have set a good example. They cater to both undergraduate and postgraduate education in science, engineering and to a limited extent humanities. They have fostered inter-disciplinary centres, programmes and healthy competition in admissions as well as staff recruitment on a country-wide basis. There is a need to set up similar Indian Institutes of Agriculture on a regional basis each providing quality education and research in specialised areas.

(b) *Colleges of Rural Technology* : A second area where there is a dire need for specialized educational institutions is in the context of integrated rural development, aimed at improving the quality of life of rural communities. There is need for professionals, who could analyse available and emerging technological alternatives. They should be equipped with components of the integrated rural development programmes coupled with managerial abilities. Today, we have either discipline specialists or managers. The missing link has certainly been an integrated personality who is reasonably well equipped with technical know-how of the major components of rural development and managerial skills. The Marathwada Agricultural University, Parbhani has developed a draft proposal for the establishment of College of Rural Technology, which should be analysed and further improved upon.

(c) *Centre for Development of Innovations in Agricultural Education:* The Government of India has set up a National Development Group (NDG) for educational innovations. Different developmental sectors including Agriculture have representations in the NDG. The NDG expects that concerned development sectors will join hands to chalk out and implement strategies for desirable advancements in education.

As far as agricultural education is concerned, there is as yet no focal point in this respect. It is desirable that a centre charged with responsibility for innovations in agricultural education be promoted which in turn could work with agricultural universities and also keep liaison with NDG. Such a centre could keep track of developments in agricultural education in the world, promote studies on innovations in the agricultural universities for adoption in the country's agricultural education system. Such a centre would enable to keep currency in agricultural education in the context of global developments and innovating thinking within the country.

UNIVERSITY NEWS

A Weekly Chronicle of Higher Education

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Subscription is payable in advance by Bank Draft only in favour of Secretary, Association of Indian Universities.

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Distance Education System and Library Service

S. S. Sahi*

The conventional system of education insists on the students attending regular classes in a specific place. Student's physical presence in classroom teaching could be conceived to be a constraint. Students from various geographical, inaccessible and remote areas find the spatial constraint and thus, get deprived of access to education. Through distance education we can overcome all such constraints and it forms the most sensible alternative to formal education. The guts of distance education consist of the correspondence course package. Over 15 lakh students pursue their education through this package, most of the courses being offered are in Arts and Commerce. The libraries can play an important role in building up 'distance education' as an important and more promising alternative to routine conventional system of education within walls.

Distance Education

Distance education does not stress physical presence of the students and at the same time provide all the facilities which have ever been provided in the conventional education system, but in an informal way. Moreover, distance education suits well to a developing country like India where about 75% of its population live in rural areas.

In classroom teaching, instruction takes the form of face to face interaction between the teacher and the taught but distance education is conducted through mass media or some useful channels of communication. The traditional education is normally branded as a closed system because it opens itself only to a limited population. It obviously puts restrictions on the rest of the sections of the population and denies them the educational opportunities. On the contrary, the distance education is also called as an open system of education.

The boundaries of distance education can be broadened and it can be used to serve not only the formal need for degrees but also real professional and semi-professional requirements. It can also be moulded to instil the concept of learning for its own sake, rather than for the sake of a job. Courses leading to general awareness can also be included in the distance education. There is need to strengthen distance education and make it the bulwork of a new system with real skill to prepare the written course material which forms its hard core. This can be supplemented by making use of electronic and mass media such as video tapes, cassettes and also radio and TV.

An international seminar on distance education was organised by the Indira Gandhi National Open University to mark its formal opening. Dr. Madhuri R. Shah, who delivered the keynote address commended need-based and non-examination enrichment courses, middle level vocational courses as well as conventional degree and master level courses, with special emphasis on quality, mobility of students and audio-visual support. The concensus in this session was in favour of regular submission and evaluation of students' assignments, careful grading and quick turn around. Short face to face teaching a sessions or contact programmes were generally favoured by the students. It was strongly felt that well organised students' services should be a must for distance educational institutions.

Open University

Perry identified three major post-war trends, the congruence of which helped in evolving the concept of Open University:

(i) Development of adult education;

(ii) Growth of Educational broadcasting; and

(iii) Increasing application of political objectives of egalitarianism in the field of education.

Perry further insists that though the provision of adult education suffered from certain limitations, it never led to a degrees. Only the middle classes availed of the provision of adult education and it never percolated to the under-privileged sections of the society. External degrees were made available but entry qualifications were insisted upon. This resulted in keeping the under-privileged school drop-outs out of the fold of tertiary education forever and it also resulted in the emergence of sub-standard commercial institutes which offered help at unreasonably high costs to the candidates who aspired to get external degrees.

**Department of Library Science, University of Jammu, Jammu.*

A number of open universities, the world over have been established on the model of the Open University of U.K. (UKOU). These are:

1. Allama Iqbal Open University in Pakistan (1974)
2. Athabasca University in Canada (1975)
3. Everyman's University in Israel (1974)
4. Fernnuiversitat in Federal Republic of Germany (1974)
5. Free University of Iran (1973)
6. Sri Lanka Institute of Distance Education (1978)
7. Universided Estatal a Distance in Costa Rica (1977)
8. Universidad Nacional de education a Distancia in Spain (1977)
9. Open University of Andhra Pradesh (Hyderabad) in India (1982)
10. Indira Gandhi National Open University, New Delhi (1985).

Media in Distance Education

While using mass-media for instructional purposes, educationists and planners have to place great emphasis on planning for various types of audience comprising illiterates, school drop-outs, the unemployed, those who want to supplement their knowledge with new advancements.

In United Kingdom, television programme of the Open University is a very great attraction. National TV programme is effectively used in distance education. However, the students consider video-cassettes more useful than TV. In Canada, telephone is used besides Radio and TV for distance education. TV programmes are considered more useful than any other media. In Japan high reliance is placed on TV and Radio. Audio-Cassettes are also used very liberally. Seventy seven percent of the students have video-cassettes and ninety nine percent have audio-Cassettes. Televised courses are supplemented by print materials and contact programmes. But 50% of the delivery system comprises TV and Radio broadcasts. In Korea, both TV and Radio are used in distance education programmes. Radio broadcasts are not properly aligned with students' free hours and hence there is a preference for audio-cassettes. Video cassettes are also produced by the Open University. Viewing and the listening facilities are also available at the study centres. In China, TV for nationwide programme is viewed by large audiences. The printed material being the cheapest is more popular. However, the students like TV, the most. In Spain, the Radio and print materials are the principal media of communication. Audio-cassettes are made available at the study centres. TV is considered prohibitively expensive. In the total delivery system print material covers 80% and the Radio 20%.

Library in Distance Education

Libraries and national adult education programmes as well as distance education are interrelated. India is one of the largest democracies in the world having 75 million population. But the rate of literacy in this large country is about 35%. It is only because of this that the need for the various adult education programmes including the distance education or open education was felt. The role of the libraries in furthering adult education is of great importance. Libraries provide an opportunity to the illiterate and neo-literate adults to learn and create a national awareness about day to day events of the country, and infuse in them a sense of participation and total dedication in the national reconstructional programme.

Keeping in view the objectives of distance education, the library attached to any distance educational institute would have to shoulder enormous responsibilities. It will have to design and plan its activities and services in such a way that all these activities and services should reach the common masses. In addition to its normal functions, such a library will have to organise the following important services:

Career Information Centre

Organisation of a career information centre (CIC) which provides information on general career guidance will be fruitful. Such an information can be delivered at the counter as well as through correspondence. In addition to the basic information on scientific careers, the comprehensive career centre also includes guidance counsellors; opportunities to take tests of skills, ability and creativity. Emphasis should be laid on machine oriented careers, because maximum students of any open education system would be common masses, workmen etc., who could not avail of the various opportunities of conventional education because of various constraints.

To be fully functional career information centre should have the support of the entire community. It is not sufficient to have a guidance/counselling staff and enthusiastic support of the centre among library personnel. The entire community, faculty, administrators, students, and the public must be aware of the centre, its purposes and needs. The best publicity for initiating the use and for sustaining the value of CIC is in everyone being aware of its goals. The usefulness of CIC depends on the appropriate materials, being available, easy access and competent service.

Mobile Units

Mobile library is a stock of books kept in a vehicle with limited staff to provide a library service to scattered communities and providing in some cases, a house to house service in remote areas such as villages and hamlets. In countries where majority of the population live in villages, this type of extension activity is most important as well as useful. Bringing books to people by book-mobile is most dramatic as well as colourful type of library service.

Study Centres

Organisation of important library services in various study centres scattered all over the far-flung areas and the organisation of full-fledged study centres is a difficult task. But the particular distance education system can select some college libraries or district libraries for rendering the various library services to various types of students residing in the territorial jurisdiction of a particular college or district library. The library attached to the distance-education system should finance these libraries, to the extent possible, so that these can be utilised as study centres, for its readers.

However, so far as possible Distance Education System (DES) should establish its own study centres in various localities and places including the rural areas. The establishment of one study centre for about 2,000 students would not at all be a costly affair. All these study centres should work under the control of the Librarian or Director of Distance Education Library System (DELS). And these study centres should open during evening hours, because majority of the students of any distance education system would not be able to attend these study centres during normal working hours, because of being preoccupied during the day time in the various occupations.

Continuing Mass-Education

Many people could not find opportunity to receive formal education. Distance Education Library system can help the common masses to educate them continuously. DELs can also help millions of people to move forward in vocational and professional skills, in family living, in the pleasure and profit of artistic accomplishment in cultural values and in learning the skills of solving individual and community problems. DELs can also serve as an agency for eradicating illiteracy among the masses. A good collection of books and other reading material and a well trained staff can exert a powerful in fighting against illiteracy as well as providing opportunities for the common masses to continue their education.

Extension Activities

Extension activity may be defined as special library activities which are undertaken with the object of reaching groups of people who might otherwise be unaware of the library, such as lecture groups, reading circles, discussion societies, etc. It may also mean provision of lectures, film-shows, etc. arranging talks and book-displays within the library or outside the library. However, in case of Distance Education Library System, the extension activities can be organised for stimulating reading interest and publicising the functions and services of the system as a whole. Modern techniques of communication such as Radio, TV, Video Cassettes, Audio Cassettes, Film-shows, etc. are also advocated under the extension library service. The lectures and group discussions may be organised in DELs directly or in association with some institutions and specialist speakers should be invited to speak on various developments in selected topics. Display and exhibition of books and other reading material is now considered to be an essential part of librarianship. □

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Convocation

A Holistic Look Around

Professor Yash Pal, Chairman, University Grants Commission, while delivering the Convocation Address at the third convocation of the Bharathidasan University, pleaded for a holistic view of things in perspective of their interrelationships. He decried the tendency of creating shells around thoughts in our attempt to impart them visibility thereby inhibiting their interaction with each other and limiting their capability to develop. Instead he urged that all learning should have a personality, an architecture and a topology that relates it to a host of other things. Excerpts:

Let me share with you a general thought, which does not come from any one discipline, but appears to me personally, to be related to all the disciplines and also related to the present crisis in human society; crisis at the level of individuals and crisis at the levels of collectivities of individuals; be they States, be they Nations and be it the world at large.

Reality Lies in Interrelationship

Tagore used to say many nice things which many of his followers do not seem to have understood. Many people think that Tagore was just a beautiful song writer. At one point he said something to the effect that 'reality does not lie in the substance of things but in their interrelationships'. In fact, relationship matters more than the things themselves which are related, and Modern Science will tell you that there is nothing except relationships. Philosophically, you can enlarge this thought to include many things. In a University, for the sake of convenience, we build several departments; we have Physics and Chemistry and Biology and Women's Studies and Political Science and what have you. Every time a new thought occurs to us, something new needs to be done and in order to give visibility to this new thought we create yet another department—another discipline. And when I said Biology, I include Medical Science and include everything. All this is fine but by trying to give visibility to these aspects, we also create a shell around them preventing interactions with each other. And there is the danger of its limiting the capability to develop, not the development of a deep expertise—yes, that can always be developed—but the development of personality, a personality for the knowledge that is acquired. Personality is again another aspect which Tagore talked about in great deal.

Personality of Learning and Interrelationship

Does the learning which we give and the learning we acquire ourselves have a personality? Does it have an architecture? Does it have a topology where it relates to a lot of other things? Does it have roadways which just disappear—you don't know where—so that following them you can enter upon other Universities? Such division and diversification become more and more essential in the present day world, because, such is the nature of the world today which is so complex and dynamic. Not only do we separate what we learnt, probably, in colleges and Universities into different departments, different components, which are isolated from each other very often, we, also end up separating the different components of our own being. We are scientists when we work in a laboratory, which means, we use certain techniques, certain modes of thought. They are very often the same scientists or obscurantists when they are doing something else. When they think about their own place in the scheme of things and how they came to be, they don't think that the Social Science or the Physical Science which they have been learning to pass their exams has any bearing on that. That seems to come from an entirely different inspiration. And so, we live a life which is not complete, not whole, not totally free. Knowledge and competence is a burden we carry, in order to be able to use it to make a livelihood. These are fools and skills we carry which don't seem to have any value-orientation or any connection with a lot of other things. It may be I am generalising, but tendencies in this direction seem to be of over-specialization, where we hide ourselves in deep holes if we are very specialised, or in very shallow puddles, if we are not so well specialised. But the puddles too are separated from each other as are the holes. One may argue that, after all, in this world of today we do need specialization. Otherwise, how would such a complicated world run? We need aeronautical engineers; we need nuclear physicists; we need accomplished surgeons; we need economists who understand the working of society and sociologists. So we need all kinds of specialists and experts to serve the needs of a complex world with its multifarious demands. I don't deny that at all. In fact, we must have better experts than we have. But the naked expertise must have clothing, must have tentacles through which it can connect up with other expertise. It is only then that a true expertise will be created. It is only then that it will enter phases in which new nodes and new nodules can grow. We all know that all the new creativity occurs at the boundaries of disciplines. Much too often, we have missed those opportunities by being confined within the expertise and having walls around us. And, I believe, if you want to do something to our educational system, we must move in a direction, where it will not be devoid of interaction with the outer world, where interdisciplinary work does not become so broad that it also becomes superficial.

Expert Learning and Moral Education

That depth is combined with an awareness of other things. Many a time we say "Time has come when we should realise that we can't be taken for a ride by the mad march of Science and Technology. The time has come when we must introduce moral values, ethical values. And, in fact, we should develop a curriculum—a core-curriculum—for Moral Education". In my view this is necessary. But, if you try to give visibility to it by creating special departments of moral education, we shall end up in a terrible problem. What ought to be done instead is that we ought to see where the ethics lie; what ethics and values lie in the very thing we do—whether you are teaching Biology, whether you are teaching Evolution, whether you are teaching anything. There are aspects which are sociological, which are ethical, which have ethical implications at least. And these are to be brought out in such a way that your ethical, moral behaviour and your expert learning go side by side. They are related. And then you will begin to live a whole free life. Then it will be ingrained into people. It becomes part of their personalities. It will become the beauty of their architecture, rather than the ten quotes of paint which somebody puts on you and which peels off when the weather is bad. Most of the time the lectures we get are of this type. It is time now for all of us, not only in this University or in this country but the world-over, to look at ourselves with a certain degree of perspective, if we want to do this mixing.

Dynamic State of Knowledge and Imperatives of Learning to Learn

All of us carry certain prejudices and certain values, which we think we have inherited: colour prejudice, language prejudice, religious-prejudice—whetever it is—against each other and so on. These exist everywhere. I don't know how it is marked! These groups are marked in us. I doubt if it's genetic in character. It must be cultural. But we talk of history and these are lessons of history that such and such people were our enemies and so we are born with this that they were our enemies. We are not born with this. We are taught this. We were not there at the time when an invader came and did something. It is a certain group which is made on us when we are young and then we are prisoners to those groups in our relationships with others. And that is why the time has to come to look at things with a certain sense of perspective. It's all too easy to think that everything—all of the marvellous universe and nature and everything—has been created for us humans. And I would allow this weakness on some occasions. But, if we are looking with a perspective, then we cannot afford that. We humans are pretty recent on this planet. Very recent! Out of 4, 5 thousand millions years that earth has been around. Humans have been around probably two million years may be more, a little more, or a little bit more. Not longer. So we were very recent. There are many other things which are more ancient. And most of us humans, live a short life on this planet. We have been gatherers of food and dress. Something like 29½ days or more than 29½ days, out of 30 days of total human existence, we have just been 100% getherers of food. It is only a few minutes ago or a few seconds ago, if I take the total human span to be a month, that we came upon what is called modern technology. A little while ago we discovered agriculture—may be half-an-hour ago. And within a last few seconds of this one month of human existence have come all the things you see around here: Communication and Broadcasting and Television. Universities are, may be, a minute old. No Universities before that—the way we know it. So, what is happening is that the changes which are upon us are now very quick. What you have learnt during your five years, I assure you, (unless you've learnt to learn) you'll be obsolete in five years. You must have learnt to learn, for the amount of knowledge doubles every five-ten years. So, we have come upon a very dynamic state. This is one aspect, which has lot of implications for how colleges/Universities are to function. But we have also learnt other things.

First and Basic Religion of Humankind

Through this search we have learnt about how life came to be. We can go even further, and we can —in a sense—begin to trace futher back to the origin of this planet and the origin of the Solar System and to the stories where you can definitely—more or less definitely—say that all the materials we are made of, anything which we see, at some time or the other, was cooked in the middle of a star. We can go further back, almost, to the very origin of the universe. In a sense, we can say that we not only have a common destiny but have origins which are pretty common. And it would have been a dead world, in a sense, if the miracle had not happened, which created this marvel called life, only one example of life which led to the growth of things; the various types, and ultimately people. And the reality of this marvel and the beauty of the marvel is such. I do not need any other exhortation to tell me that I should revere life, that I should have consideration and reverence for other people. It is so rare. We don't see it anywhere in our planetary system, except on this planet, and it is only one kind of life. The beautiful trees you are growing all around you—they're also related to us as experts will tell you; they are cousins too. So, in a sense, if you want to, you can look at it all and begin to see, not only are we related, we are connected. We begin to answer some of the questions or at least provide objectification to some of the answers to questions like 'Who am I?', 'What am I?', 'Where I came from?','How am I related?'— In ways, which are not in opposition to anything which has been said by great philosophers or sages. On the other hand, it is the common way of finding a belonging and finding a meaning for 'why we are here?' But you can go much further and clearly state ultimately that, now that we are so many, our ethics have to be such which recognise the fact that this planet and we, and all that grows on it, and everything essentially is a single organism and, being a single organism, if we behave in ways contrary to what is required, we'll destroy this whole organism. It is from this that you should derive your ethics about relations between. Nations, relations between societies relation to each other, relation to environment. In a sense, you can say, an overall ecological behaviour both towards life and people and things become almost.'The First and Basic Religion of Human Kind' consistent with all the religions you talk about. And you can grow up to a certain religiosity, which is not dictated by the brand names, which is not dictated by the packages in which it comes. And, if you begin to move in this direction, you also begin to see the tremendous interrelatedness of it all. And, in addition, if you, change, alter, hopefully within the next few decades, the human psyche in such a manner that this realization comes about, then we have no dangers from Science and Technology as tools. Tools of Science and Technology are given to us after all to be able to deal with ourselves. But the time—constants of developing new tools are so short and time—constants of changing human psyche are so long that we will be in real trouble unless we pay great attention to that particular aspect. We may even be obliterated if we do not do it. This exponential growth is like an explosion (is it actually a definition of explosion?). It is a very exponential growth an exponential growth in powers, without change in that psyche.

Futility of Squire One

I differ from a lot of people who say "Since this problem exists let's go back". There is no going back available to anybody. No problem can be solved at the point where it originated. What is available to us now—and what we must seek—are common ways and not different ways, which differ from caste, creed, religion, race and so on. Common ways of developing that particular psyche that we belong to, that this ecological religiosity is the one, and, mind you, I'm not saying anything against any religion. In fact, I'm, if at all, supporting all those. What I'm saying is that "Please don't worry about package colours or brand names. Look at the essence and the essence is what is compatible if it's objectified". But we are what we have learnt, whether through science or through learning or stimulated by wise men of old. And this should be common: this should form the basis of the common psyche of human beings. Once you begin, you function this way; you immediately remove the dichotomies which exist in your personality. Between the world of two in between the external world and the internal world, the spiritual world and the physical world there is a mixing which begins to happen. And this is in the same nature in regard to the disciplines I was talking about. So, we need to move in this particular direction through this perspective in terms of what we learn and how we conduct ourselves each other with respect to others.

Freedom from Ourselves

An important meaning of it all is, all this is an exercise towards awakening to a real freedom; freedom even from ourselves. And, on the practical side, once we realise that we have begun to live now in a dynamic age, that we are even free of what was taught to us because we have to learn ourselves that we are living in this exponenciation where everybody will create new things tomorrow, it is also self-evident that those societies which do not create things for themselves—which do not innovate, which do not invent, which do not just absorb technology but create technology and tools specific to themselves and related to themselves, that those societies will also not have any future. If at all they have a future, it will be a client future: it will be a dependent future. And so, we have to be exuberant and buoyant in this freedom. I don't like statements such as, "What is the impact of technology on society or impact of new technology as one in India?" etc. Let us not think that way. Let us take whole of things and create the technologies we need. May be, others would want some and we should take some from others. Because, that is the imperative of present times and that is the imperative of this new way of living free—not only in terms of consumerism but in terms of totality and 'free'. We should not be imprisoned internally and free externally. We need to be free both internally and externally and we have to combine these in a uniform way of looking at things and the personalities and the topologies, which they can develop, probably will lead humanity to its destiny. It should have the destiny it should have, not the destiny it might have. ☐

Yugoslav Varsities' VCs Visit AIU

A seven-member delegation of the Vice-Chancellors of universities of Yugoslavia visited AIU House recently. The delegation was visiting India at the invitation of the University Grants Commission under the Indo-Yugoslav Cultural Exchange Programme. Headed by Prof. Zoran Pjanic, Vice-Chancellor of the Belgrade University, the delegation was in India to explore the possibility of developing collaboration between the universities and institutes of higher education in the two countries in specified areas.

Dr. Jagdish Narain, Secretary, Association of Indian Universities (AIU), received the delegation and briefed them about the large higher education system in the country that comprised over 166 universities and 5500 colleges. The delegation was impressed that both the conventional universities and others like IITs, Agricultural Universities, Medical Universities, Women Universities and Open Universities flourished side by side in India. All these institutions have adequate faculty representation and autonomy to carry out the process of teaching, research and extension activities.

The delegation was apprised of the multifarious activities of the AIU in discharge of its function as a coordinating body of Indian universities. The AIU has, over the last six decades, worked ceaselessly for the promotion of university autonomy and inter-university cooperation. It acts as a clearing house of information on the Indian university system, determines equivalence of degrees awarded by Indian and foreign universities, organises Inter-University Sports Tournaments and Inter-University Cultural Festivals, disseminates research information and also maintains a research cell which is presently working on the areas of Examination Reforms and Economics of Education. The AIU also represents Indian universities in national and international forums.

The visiting delegation informed that their faculty enjoyed complete academic freedom. There was also fair participation of teachers and students in academic governance.

The visiting Vice-Chancellors and the AIU officials discussed the terms of protocol signed between the two countries on recognition of degrees/diplomas. The visitors were informed that the AIU has recognised degrees/diplomas awarded by Yugoslav universities and visiting students from both the countries were not likely to face any difficulty in assessment of their qualifications.

Apart from Prof. Pjanic, the leader of the delegation, other members of the delegation were Prof. Todor Dzunov, Vice-Chancellor of Kiril and Metodij University (Skopje), Prof. Ivan Kristan, Vice-Chancellor of Edvard Kardelj University (Ljubjana), Prof. Vladimir Stipetic, Vice-Chancellor of Zagreb University, Prof. Berislav Topic, Pro-Vice-Chancellor of Sarajevo University, Prof. Dragutin Zalenović, Pro-Vice-Chancellor, University of Nov Sad and Prof. Franc Vreg, Chairman of the Commission for International Co-operation of the Association of Yugoslav Universities.

During their nine days stay in the country, from February 22 to March 2, 1987, the delegation called on the Chairman of the University Grants Commission, and visited Delhi-based universities—Delhi University, IARI, AIIMS, and JNU. Some of the other universities/institutes visited by the delegation were Bombay, Madras, Rajasthan, Anna, IIT Madras, SNDT and TISS, Bombay. ☐

Methodology of Teaching Russian

An All India Workshop-cum-Seminar on "The Methodology of Teaching Russian in Non-Native Environment" was held at the Department of Russian, Central Institute of English and Foreign Languages, Hyderabad from 5th to 11th January 1987. Inaugurating the seminar, Professor S.K. Verma, Director of the Institute, reviewed the various foreign language teaching methods prevalent in the country and stressed the need for trying out a variety of methods keeping in view the socio-linguistic contexts in which we are teaching and learning foreign languages. He observed that it might not be pedagogically sound to do away completely with the grammar-translation method, for grammar and translation had important roles to play in the teaching of foreign languages to Indian learners.

Dr. J.P. Dimri, Professor and Head of the Department of Russian, in his welcome address elaborated upon the problems and prospects of developing a methodology of Russian language teaching appropriate to the Indian situation of teaching/learning. He observed that in view of the fact that various Indian universities have been teaching Russian for over three decades, it would only be proper at this juncture (a) to define methodological principles of language teaching responding to our language needs, and (b) to produce indigenous teaching/learning materials. He felt that it might not be desirable to transplant the western methodology as such without a comprehensive knowledge of our teaching/learning setting.

Around 35 delegates participated in the Workshop-cum-Seminar, including seven soviet specialists working in different Indian universities under the Indo-Soviet Cultural Exchange Programme. The faculty members of the departments of French, German, Arabic and English at the CIEFL also delivered special lectures on "Issues in foreign language teaching". The seminar was also attended by a two-member delegation: Dr. A.V. Titarenko and Dr. L.S. Burdin from the A.S. Pushkin Russian Language Institute, Moscow. Dr. A.V. Titarenko, besides giving a demonstration lecture on conducting Russian language classes for foreign language students, delivered a special lecture on "Russian language teacher training programmes for specialists in various fields". She highlighted some theoretical aspects of the teaching of Russian language as a foreign language, and emphasized the need for organising specialised training courses meant for students-philologists (the future teachers of Russian language) by conducting practical classes as well as courses on the theory of language. Dr. L.S. Burdin discussed the role of translation in the methodology of teaching Russian as a foreign language both in native and non-native environments. He further emphasised the need to treat translation as an independent discipline.

The seminar focussed on the following aspects of Russian language teaching:

(i) General issues in foreign language teaching;
(ii) Role of translation;
(iii) Methodology and Applied Linguistics;
(iv) Teaching of Russian and Soviet Literature;
(v) Classroom techniques; and
(vi) Material production.

Proposals for a syllabus of the Methodology of Teaching Russian as a foreign language at the post-graduate level in Indian universities were formulated for onward transmission to the University Grants Commission for its consideration and implementation.

Kashmir Varsity Introduces 3-year Degree Course

The University of Kashmir has decided to switch over to the Three-Year Degree Course after 10+2 stage of education with effect from the academic session 1987. No student shall be eligible for the award of the first degree unless he has successfully completed a three-year course of study. The University shall conduct an examination at the end of each year of the Three-Year Degree Course.

Only such of the candidates as have passed Three Year Degree Course after 10+2 stage of education shall be admitted to various post-graduate and other programmes in the University from the academic session 1990 onwards. However, until 1990 the University shall continue to award two-year pass course degrees for failures and other such categories of students.

Environmental Mutagen Society Meet

A 3-day Conference of the Environmental Mutagen Society of India was organised by the Department of Genetics of the Haryana Agricultural University (HAU) at Hisar recently. Shri L.D. Kataria, Vice-Chancellor, HAU, while inaugurating the Conference observed that with the dependence of day-to-day life on a wide range of chemicals, namely, agro-chemicals, organic and inorganic industrial compounds, we seemed to be swimming in a sea of environmental pollutants. Referring to the various aspects of the modern development, he opined that the advancement in technology had no doubt brought economic gains to man and comfort in his life style but it had also created a number of unexpected social, ethical, political and biological problems. The Vice-Chancellor called upon the participants to urgently take up remedial measures and save the human beings from pollution of air, food and water.

Over sixty delegates from all over the country participated in the deliberations of the conference and presented papers on various aspects of Mutagens and Pesticides as environment contaminants.

Physical Education College for Southern Region

The President of India, Giani Zail Singh, laid the foundation stone for the prestigious Laxmibai National College of Physical Education (Southern region) at Trivandrum. The college will come up at the Kerala University Campus, Kariavattom, in a 50-acre plot.

The purpose of establishing a college at Trivandrum is to upgrade the status of physical education, by offering degree and postgraduate degree courses. The main objectives are to improve the quality of professional preparation of teachers in physical education. The college will provide higher education at the postgraduate level and will also function as a feeder institution to the LNCPE, Gwalior, for specialised courses.

PGI for Hyderabad University

A committee constituted by the University of Hyderabad under the Chairmanship of Dr. K.N. Rao, Vice-Chancellor, A.P. University of Health Sciences, is reported to have recommended the establishment of a Postgraduate Institute of Medical Research, Education and Training. The Institute will be set up in three phases covering five divisions with departments or units as its organisational structure. A project officer is likely to be appointed soon to take up the preparatory work. The estimated expenditure, including recurring expenditure, for the first ten years is expected to be Rs. 28 crores.

News from Agril. Varsities

Streamline Farm Education —Dhillon

The Union Agriculture Minister, Mr. G.S. Dhillon, called for the removal of "serious anomalies" in the country's agricultural education system, including large variations in the existing system. He was inaugurating a conference of Vice-Chancellors of agricultural universities in New Delhi recently. He said variations existed at present in the duration of courses, admission requirements and the system of education and evaluation. These variations were contrary to the recommendations of the Deans Committee appointed by the Indian Council of Agricultural Research (ICAR).

The Minister also expressed surprise that even though agricultural universities had been established in almost all States, many institutions continued to offer higher agricultural education programmes outside the agricultural university system. He urged the Vice-Chancellors to persuade the State Governments to take suitable action in this matter.

Referring to the problems facing the functioning of the ICAR research schemes in agricultural universities, Mr. Dhillon said in many cases difficulties cropped up because vacancies were not filled and transfers were too frequent. In certain cases submission of audit utilisation certificates was not timely, because of which the Council was unable to release further grants although budget allocations were available. The Minister asked the Vice-Chancellors to look into such matters urgently and sort out the problems in consultation with the ICAR. The ICAR, on its part, should also introduce some flexibility in funding projects, since rigid financial rules created unnecessary paperwork, caused delays and eventually impaired the quality of research output.

Mr. Dhillon recalled that the Association of Agricultural Universities had recommended that atleast a portion of the scientific staff of agricultural universities should be selected on a national basis to ensure that State agricultural universities maintained a national outlook while fulfilling a regional mandate. He wanted the Vice-Chancellors to give earnest attention to this major recommendation since such a step would not only improve the standard of education in the agricultural universities system but also promote national integration. Similarly, a substantial percentage of seats in the educational programmes should be reserved for students from other States, without affecting the selection standards prescribed for local students.

Mr. Dhillon welcomed the opening of three more new agricultural universities in Dharwar, Raipur and Solan, which took the number of these universities in the country to 25. He, however, said it was imperative to prevent unnecessary proliferation of such institutions if the objective could be achieved through suitable expansion or reorganisation of the existing units.

2nd Convention of Agricultural Engineers

Dr. N.S. Randhawa, Director General, Indian Council of Agricultural Research, expressed his serious concern over the problem of rise in water table and consequent widespread soil salinisation and alkalinisation which have resulted in the irrigated lands going out of production. He was delivering the inaugural address at the two-day Second Convention of Agricultural Engineers organised by the Haryana Agricultural University at Hisar.

Dr. Randhawa pointed out that several studies have indicated efficiencies in the different irrigation projects hardly ever exceeded 50% and in several cases are less than 30%. This wastage resulted in high water table, water logging and salinity. Recently, about 6-8 million hectare of canal irrigated areas have become water logged. He said that ecological system was presently under heavy stress due to deforestation, overgrazing of pastures and environmental disturbances caused by activities of mankind. He appealed for all out efforts to restore the ecological balance through appropriate land reclamation and afforestation measures as well as by introducing tree farming system into land management practices. Dr. Randhawa also stressed the need to create a cadre of water management extension specialists who could provide continuous linkage between the researchers and the farmers.

Dr. Satish Chandra, President, Institution of Engineers, presided. In his address he stressed that agricultural scientists, socio-economists, administrators and engineers must evolve an inter-disciplinary approach for improving the production potential of dryland agriculture. He emphasised the need to carry out research and field studies in developing improved water harvesting techniques, developing improved agriculture implements and carrying out operational research on water shed basis to transfer the technology to the farmers.

Over 130 delegates from all over the country attended the convention at which thirty papers were presented in the technical sessions.

News from UGC

INSAT-1B Programme of UGC

Between 21st and 31st March, 1987 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

21-3-87

"Counselling"
"Noh Drama"

22-3-87

No Telecast

23-3-87

"Soil Tillage in Dry Land Agriculture"
"Harnessing the Monsoons"
"Winds and their Causes"

24-3-87

No Telecast

25-3-87

"Welcome Mr. Halley! Halley's Comet-II"
"Dreams of Distant Shores"

26-3-87

No Telecast

27-3-87

"Food Preservation-III"
"Star Town"
"Welcome Mr. Halley! Findings of Experiment"

28-3-87

"Heiner Schepers—Puppeteers Inter Nationes"
"Dr. B.C. Roy"
"Vision of Nehru"

29-3-87

No Telecast

30-3-87

"Composite Fish Culture"
"Oyster Farming in the Tropics"

31-3-87

"Welcome Mr. Halley! Findings of Experiment-II"
"EMMA"
"The Women of Giriloyu"

We Congratulate......

Prof. G.S. Marwaha, former Director, Indian School of Mines and President, Association of Indian Universities, who has been appointed by the Government of India as Chairman of the Advance Environment Planning Group.

Sports News

Inter-Varsity Gymnastics and Malkhambh Championships

Manipur University, Imphal, organised the 5-day All India Inter-University Gymnastics (M/W) and Malkhambh Championships 1986-87. 31 universities took part in the competitions inaugurated by the Chief Minister of Manipur, Shri Rishang Keishing.

Gymnastics

Guru Nanak Dev University, Amritsar, won the Gymnastics Team Championship for Men. Second and third positins were claimed by Vikram and Delhi Universities respectively.

Manipur Chief Minister taking salute at the inaugural function

A student performing in the Malkhambh Competition

W. Inaobi Singh of Manipur University was declared the best Individual All Round for Men while N. Sashi of Panjab University, and V.H. Sabale of Amravati University secured the second and third positions respectively.

The Individual All Round position for Women in Gymnastics was annexed by W. Dhaneshori Devi of Manipur University. The second and third positions were won by Asha Soni of Maharshi Dayanand University and Meenakshi Gupta of Delhi University respectively.

Malkhambh

Poona University won the Team Championship in Malkhambh. Second and third positions went to Bhagalpur and Shivaji Universities respectively. Poona University also won all the three individual all round positions. Y.V. Yeole won the first place while A.D. Bhat and R.V. Gaikwad claimed the second and third positions respectively.

Maj. Gen. P.L. Kukrety (Sena Medal), G.O.C.-M. Sector, was the Chief Guest at the concluding function which was presided over by Prof. K.J. Mahale, Vice-Chancellor of the Manipur University. Prof. B.D. Nagchowdhury, former Vice-Chancellor, Jawaharlal Nehru University, also graced the occasion.

National Marathon Championship

Indian Universities (Women) Team comprising Rajshree (Delhi University) and Mrinalani (Nagpur University) claimed the 3rd place in the team event at the National Marathon Championship concluded at Calcutta on March 1, 1987. Rajshree figured in the best 3 Marathon runners next to the best two of the Indian Railways.

AIU News

AIU Standing Committee Meets at Calcutta

Rabindra Bharati University, Calcutta, hosted the 211th Meeting of the Standing Committee of the Association of Indian Universities (AIU) on February 28, 1987. Prof. G. Ram Reddy, Vice-Chancellor, Indira Gandhi National Open University, presided. The meeting was attended by Dr. P.V. Salvi, Vice-President AIU and VC, Konkan Krishi Vidyapeeth, Dapoli; Dr. S.D. Gogoi, VC, Dibrugarh University; Prof. Ramesh Mohan, VC, Meerut University; Prof. Ramaranjan Mukherji, VC, Rabindra Bharati University; Shri L.D. Kataria, VC, Haryana Agricultural University, Hisar; Dr. Sukhdev Singh, VC, Punjab Agricultural University, Ludhiana; Prof. M. Abel, VC, Shri Krishnadevaraya University, Anantapur; Dr. H.P. Dikshit, VC, Rani Durgavati Vishwavidyalaya, Jabalur; Prof. K.S. Shastri, VC, Gujarat University, Ahmedabad; Shri R.B. Shukla, VC, Saurashtra University, Rajkot; Dr. K.B. Powar, VC, Shivaji University, Kolhapur; Prof. R. Subbayyan, VC, Bharathiar University, Coimbatore; and Shri S.C. Behar, VC, Guru Ghasidas University, Bilaspur.

Earlier an AIU sub-committee on 'Education in Human Values' met on February 27, 1987 at Rama Krishna Institute of Culture to discuss inculcating moral values so as to establish a creative and progressive society. The Committee has recommended *inter alia*:

(i) foundation courses on moral and spiritual values should be prepared and taught in all the universities/colleges;

(ii) In order to provide facilities for training of teachers in moral values, training cells should be set up at selected universities; and

(iii) All the common and vital elements of religious practices in India should be taught in the universities to promote mutual understanding, national integration and understanding of unity of all religions.

On February 28, the members of the Standing Committee also met the Chancellor and Governor of West Bengal, Prof. Syed Nurul Hasan at Raj Bhavan. The Vice-Chancellors of West Bengal Universities were also present. The Chancellor discussed various AIU activities and its role in promoting the cause of higher education in the country.

The meeting focussed on the following issues:

(1) U.G.C. should render adequate financial assistance to all universities established by Acts of State Legislatures;

(2) Speedy action should be taken by the West Bengal Government to transfer all Agricultural Research Projects to Bidhanchandra Krishi Vishwavidyalaya, Kalyani;

(3) The State Government should bear the matching share in respect of all development schemes approved by University Grants Commission and agree to maintain all teaching posts sanctioned by UGC after UGC assistance comes to end; and

(4) Minimal Examination Reforms should be introduced in all universities.

It was agreed that the State Govt. in collaboration with all universities in the State would host Youth Cultural Programme during Festival of USSR in India in January, 1988. About 100 USSR youth would be participating and exchanging ideas with Indian Youths.

The Standing Committee meeting opened with a discussion of Shri Kanti Chaudhury's (former VC, Jabalpur University) report on the AIU Sports Division and its training/coaching programmes. It was felt that the procedures and timetable for sponsoring University athletes for Universiade need modifications.

The report of the Sub-Committee on Medical Institutes was considered with respect to specific suggestions for making these institutions functionally autonomous. The AIU President was requested to set up Committees and Working Groups to study the following issues:

(a) Financing of State Universities and the system of maintaining annual block grants.

(b) Accountability of universities and erosion of university autonomy.

To forge better links with the regional and state-wise organisations and universities, it was suggested that the senior-most Vice-Chancellor of the State should liaise the State Coordinating Committee of Vice-Chancellors with AIU. Wherever issues of national importance are discussed, a representative of AIU Secretariat may also be invited.

The organisation of zonal meetings of the Vice-Chancellors prior to the Annual General Body Meeting was accepted. It was felt that important problems of universities in the four zones should be focussed and discussed at length prior to Annual General Body meeting.

The Standing Committee discussed various means of effective participation of Indian Universities in the affairs of the Association of Commonwealth Universities (ACU). It was also decided to host the Conference of the Commonwealth Universities Executive Heads in India in 1991.

It was reported that AIU would soon organise Group Discussions, Workshops and Training Programmes for different categories of University Administrators during the course of the year. The first in the series would be a Discussion Group for the Vice-Chancellors on 'Modernisation of Universities'. The session would be held in Delhi from April 30 to May 2, 1987 and would be followed by sessions to be organised later for the Pro-Vice-Chancellors, Deans, Registrars and Deputy Registrars.

The Committee resolved to grant regular membership of AIU to Kakatiya University, Warangal and Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum; while provisional membership was given to Shri Jagannath Sanskrit Vishwavidyalaya, Puri; Postgraduate Institute of Medical Education and Research, Chandigarh and the University of Health Sciences, Vijayawada.

It was decided to organise a National Seminar on the Strategies to be adopted by universities for the implementation of the National Education Policy in the field of higher education at Coimbatore prior to the Annual General Meeting to be held there from December 11-13, 1987.

The 212th meeting of the Standing Committee will be held at Manipur University, Imphal from June 6-8, 1987. ☐

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CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
March 23-27, 1987	Short term Course on Base Metals Identification and Delineation through Satellite Remote Sensing	To acquaint the participants with the techniques of Image Processing and Digital Analysis of Landsat Data with special emphasis on the application of techniques to the fields of Water Resources, Pedology, Forestry, Earth Sciences and Mineral Resources	Centre of Studies in Resources Engg., IIT, Bombay.	Dr. T.V. Pavate, Chief Project Engineer, Training Extn. & Project Cell, R.S.. No. VI, C.S.R.E., Indian Institute of Technology, Powai, Bombay.
March 26-27 1987	Seminar on New Education Policy	To evaluate the New Education Policy and Programme of Action documents	Zakir Husain Centre for Educational Studies, Jawaharlal Nehru University, New Delhi.	Dr. (Mrs) Sushila Singhal, Associate Professor, Zakir Husain Centre for Educational Studies, JNU, New Delhi - 110067.
April 7-17, 1987	Introductory Course in Phonetics and Spoken English	To acquaint college and university teachers of English with the problems of English speech and pronunciation.	Central Institute of English and Foreign Languages, Regional Centre, Lucknow.	Prof. V.D. Singh, Course Director & Officer-in-charge, Central Institute of English and Foreign Languages, Regional Centre, Moti Mahal Campus, 2 Rana Pratap Marg, Lucknow-226 001.
May 9-10, 1987	**National Seminar on Physical Fitness and Sports Standards in Universities**	**To identify various problems impinging upon sports performance and to deliberate on issues having significant bearing on mass awakening and motivation for promoting sports and physical education.**	**Association of Indian Universities (AIU) in collaboration with Mohanlal Sukhadia University, Udaipur.**	**Shri G.S. Sivia, Dy. Secretary (Sports), Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi - 110002.**
September 6-19, 1987	**International Seminar on University Administration**	**To consider the impact upon administration of changes in both the external and internal environment of universities and the development of appropriate styles, structures and management in administration**	**The British Council, London (to be held at the University of Salford, Salford, England)**	**Mr. Stuart R. Bosworth, Registrar, University of Salford, Salford, England M5 4WT.**
November 16-20, 1987	Seventh National Symposium on Radiation Physics	To provide a forum for a collective discussion and identification of the emerging new directions in the field of Radiation Physics	Department of Physics, Mangalore University, in collaboration with the Indian Society for Radiation Physics	Dr. N. Lingappa, Convener, Programme Committee, NSRP-7 and Head, Department of Physics, Mangalore University, Mangalore.
November 26-28, 1987	**International Seminar on Instrumental Methods of Electro-Analytical Techniques.**	**To provide a forum to research workers and practitioners for exchange of information and technical perceptions in instrumental methods of electro-analysis..**	**Indian Institute of Science, Bangalore.**	**Prof. M.H. Dhananjaya, Principal and Chairman of the Organising Committee, S.J. College of Engg., Mysore.**

INSTITUTE FOR PLASMA RESEARCH

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Applications for these programmes should include a detailed resume specifying name, address (Present and Permanent) and academic record (including rank): and two letters of reference from their teachers, and should be sent to the Chief Administrative Officer at the above address superscribing the envelope the Advt. No. and the programme applied for.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Bhatia, Daljit Singh. *Almost quasi projectives and almost M projective modules.* HS Gour. Dr. R.S. Singh.

2. Chourasia, Virender Kumar. *Some problems on summability methods.* HS Gour. Prof. S.K. Srivastava.

3. Jagtap, T.B. *A study of generating function techniques in special function theory.* Shivaji. Dr. K.R. Patil.

4. Jain, Rajender Kumar. *Some results in the fixed point theory.* HS Gour. Dr. R.K. Jain.

5. Kapur, Sadhana. *Some problems on fourier analysis.* HS Gour. Prof. S.K. Srivastava.

6. Khan, Rashi Dulla. *Some problems on fixed point theorem.* HS Gour. Prof. P.L. Sharma.

7. Rawat, Pratima. *Fixed point theorems.* HS Gour. Prof. P.L. Sharma.

8. Singh, Kunwar Bahadur. *Some problems on fixed point theory.* HS Gour. Prof. P.L. Sharma.

9. Soni, Rajender Kumar. *Some problems on approximation by fourier series and allied series.* HS Gour. Prof. S.K. Srivastava.

10. Tiwari, Rajesh Kumar. *Some problems in topology.* HS Gour. Dr. K.K. Dubey.

Physics

1. Mittal, Harish Mohan. *Nuclear physics: Study of nuclear structure of medium heavy nuclei.* Delhi. Dr. J.B. Gupta.

Chemistry

1. Bhagi, Ajay Kumar. *Synthesis structural and biochemical characterisation of metal complexes containing S-N or S^2O-donar ligand.* Delhi. Prof. R.N. Kapoor.

2. Idage, S.B. *Studies in functionally terminated polymers.* Shivaji. Dr. S.P. Vernekar.

3. Jain, Vinod Kumar. *Coordination chemistry.* Delhi. Prof. B.S. Garg.

4. Kamta Prasad. *Photochemistry of chlorophylls.* Delhi. Dr. A.K. Banerjee.

5. Mohammad Nasrul Islam. *Thermodynamic and transport properties of aqueous solutions of amino acids.* Delhi. Dr. R.K. Wadi.

6. Mohinder Kaur. *Studies in heterocyclic compounds.* Delhi. Dr. V.K. Ahluwalia.

7. Pandey, Pramod Kumar. *Biochemistry of steroid and protein hormones.* Delhi. Dr. H.C. Krishnamurti.

8. Saluja, Chand. *Peptide synthesis.* Delhi. Dr. V.S. Chauhan.

9. Savita Kumari. *Peptide synthesis.* Delhi. Dr. V.S. Chauhan.

10. Vardhan, Anand. *Synthesis of macrocylic aminolactams and lactomes.* Delhi. Dr. V.S. Parmar.

Earth Sciences

1. Naug, Bhaskarjyoti. *Montrometric analysis of stromatites using numerical and computer simulation techniques.* Delhi. Dr. D.M. Banerjee.

Engineering & Technology

1. Ramji. *Real time analysis of power systems.* BHU. Dr. D.S. Chauhan.

BIOLOGICAL SCIENCES

Anthropology

1. Lakshmi, K. *Human growth and developments : Physical growth of well-to-do Delhi boys from 0 to 20 years.* Delhi. Dr. Raghbir Singh.

2. Mehrotra, Nilika. *Study of women's movements in India with special reference to Delhi.* Delhi. Dr. J.S. Bhandari.

3. Patnaik, Kishore Kumar. *Physique and aerobic capacity of athletes and non-athletes.* Delhi. Dr. Indera P. Singh.

Marine Biology

1. Maya, S. *Studies on littoral algae of South-West Coast of India.* Kerala. Dr. N. Balakrishnan Nair.

Botany

1. Kapoor, Sanjay. *Plant cell and molecular biology.* Delhi. Prof. S.C. Maheshwari.

2. Mahajan, Kapal. *Genome organisation and evolution.* Delhi. Dr. S.N. Raina.

3. Singh, Mithilesh Kumar. *Experimental embryology.* Delhi. Prof. N.S. Rangaswamy.

Zoology

1. Dubey, Prem Nath. *Role of 5-MT in the modulation of immune response.* BHU. Prof. P.C. Sen.

2. Geetha, P.R. *Studies on some aspects of female accessory reproductive glands in Opisina arenosella (Nephantis serinopa) (Cryptophasidae; lepidoptera) and Oryctes rhinoceros (Scarabaeidae; Coleoptera).* Kerala. Dr. V.K.K. Prabhu.

3. Rajni Bala. *Seasonal and light induced changes in gonadotropin receptors and hormone levels in Indian weaver bird.* Delhi. Dr. R.N. Saxena.

4. Sehgal, Arunima. *Insect toxicology.* Delhi. Prof. M.K.K. Pillai.

5. Unnikrishnan, R. *A comparative study on the influence of certain factors affecting host visitation of three haematophagous insects.* Kerala. Dr. R.S. Prasad.

6. Veedon, Agnes Clara, K. *A comparative study on the effect of feeding of certain haematophagous insects on immunised host.* Kerala Dr. R.S. Prasad.

7. Vishnu Kumar. *Changes in gonadotropin binding and hormone levels under different photo-period during annual reproductive cycle of short tailed* bandicoot rat. Delhi. Dr. R.N. Saxena.

Medical Sciences

1. Chandrakanthy, C. *The philosophy of total patient care.* Kerala. Dr. S. Krishna Kumar.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Ansari, Sayeedur Rehman. *An analytical study of theory of functions applied to physical problems.* Rohilkhand.

2. Datta, Jayanta Kumar. *Some contributions to measurable sets.* Calcutta.

3. Dixit, A. Lalitha. *Propagation of acceleration and shock waves in physical gasdynamics : Analytical and computational studies.* IIT Delhi.

4. John, C. Jessy. *Arma modelling of time series based on rational approximation of spectral density function.* Cochin.

5. Vivekanandan, P. *Wave propagation in piezoelectric hexagonal crystal glass.* Anna.

Statistics

1. Khot, Pradeep G. *Some contributions to the theory of ratio and product estimators in survey sampling.* Nagpur.

2. Narayan, Shyam. *A study of human fertility in Garhwal.* Avadh.

Physics

1. Ajithkumar. C.M. *Studies on magnetic monopole solutions of non-abelian gauge theories and related problems.* Cochin.

2. Baldha, G.J. *Investigations of magnetic properties of ferrites.* Saurashtra.

3. Bandyopadhyay, Gautam. *Single particle states in spherical nuclei.* Calcutta.

4. Bansal, Tarsem Kumar. *D.C. resistivity and structural investigations of iron containing barium-boro-vanadate glasses.* IIT Delhi.

5. Basu, Debasri. *Some properties of mercuric iodide and debye characteristic temperatures of solids.* Calcutta.

6. Bhattacharyya, Nitaipada. *DNA damage and mutation by X-rays ultraviolet light and N-methyl-N-nitro N-nitrosoguanidine in V79 chinese hamster cells.* Calcutta.

7. Ghosh, Sandhya. *Three dimensional structure analysis of organic compounds by X-ray methods.* Calcutta.

8. Jha, Shobha. *Physiological changes in Periplaneta americana after exposure to microwaves.* Rajasthan.

9. Joshi, M.J. *Growth and characterization of bismuth single crystals.* Saurashtra.

10. Mitra, Bani. *Some aspects of algebraic cohomology and generalised lie algebras.* Delhi.

11. Patel, Urmila Harmanbhai. *X-ray structural studies of biologically important molecules.* Patel.

12. Peter, George. *Growth and characterization of diammonium hydrogen citrate and citric acid monohydrate single crystals.* Cochin.

13. Seth, Suraj Prakash. *Periodic heat transfer studies on reduction/increase of solar thermal flux in space and water heating system.* Magadh.

Chemistry

1. Agrawal, Anupam. *Chemical nature and pulpability of Leucaena species.* HS Gour.

2. Agarwal, Shachi. *Chromatographic studies on some synthetic inorganic ion exhangers and their applications with special reference to water purification.* Rohilkhand.

3. Agarwal, Sunil Kumar. *Chromatographic studies on some antimonate ion exchangers.* Rohilkhand.

4. Baleshwar Singh. *Kinetic study of oxidation of schiff base by Ce(IV) in acidic medium.* Rohilkhand.

5. Bambah, Pawan Kumar. *Synthesis of some naturally occurring isoflavones and isoflavanones and synthetic studies of some biochemical reactions of polyphenols.* Delhi.

6. Bhaumik, Prasanta Kumar. *Plant chemistry.* Calcutta.

7. Dasgupta, Anita. *Synthetic and microbiological studies on the compounds related to nucleic acid bases.* Calcutta.

8. De, Amitabha. *Role of a few synthetic inorganic cation exchanges in studying radiochemically the adsorption of different tracer cations and some parent daughter radioisotope separations.* Calcutta.

9. Emmanuel, Neela Anthony. *Effect of substitution on ligands on ternary complex stability.* Baroda.

10. Gupta, Mala. *Studies of schiff base metal complexes.* Rohilkhand.

11. Gupta, Vinita. *Studies on anilic acids and their zirconium and thorium complexes.* Rohilkhand.

12. Harwant Kaur. *Thermodynamic studies of some binary liquid mixtures.* PAU.

13. Jagdishchandra Bhatt, Vinay Kumar. *Studies on the synthesis and analytical applications of some organic reagents.* Baroda.

14. Jaiman, Rameshwar Dayal. *Physico-chemical studies of some new metal chelates of nitrogen containing ligands.* Rajasthan.

15. Juneja, Harjeet Singh. *Synthetic and structural studies of some chelate polymers.* Nagpur.

16. Madhurima. *Oxidative mechanism of schiff's bases by ceric sulphate in acidic medium.* Rohilkhand.

17. Malla, Jawahir Lal. *Analytical studies of transition metal complexes.* Jammu.

18. Meer Akbar Ali. *Mixed ligand complexes of 3d and platinum group metal ions with purines, pyrimidines, nucleosides and other nitrogen containlng ligands.* Osmania.

19. Mitra, Tripti. *Studies on nitrosyl, carbonyl and cyanorhenium complexes.* Calcutta.

20. Pandey, Anil Kumar. *Metal chelates of some multidentate ligands.* Rohilkhand.

21. Parthasarathy, T. *Polymerization of N, N-methylenebisacrylamide and acrylonitrile under thermal and photochemical conditions: A kinetic study.* Osmania.

22. Pathak, Mamta. *Studies on plants constituents.* HS Gour.

23. Rama Rao, E. *Synthesis and characterization of platinum group metal complexes of mixed donor-polydentate ligands.* Osmania.

24. Roy, Sukdev. *The use of surface active agents in the spectrophotometric determination of metal ions.* Nagpur.

25. Sad, Asha Ram. *Studies on metal chelates of sulphur containing ligands.* Rajasthan.

26. Samaiya, Gulab Chand. *Studies on the glycosidic principles of some fegopyrum plants.* HS Gour.

27. Sharma, Rattan Lal. *Spectrophotometric and derivative spectrophotometric investigations of complexation reactions of some non-transition metal ions with azo dyes in presence of a surfactant.* Delhi.

28. Sharma, Vijay. *Preparation, characterization and acceptor behaviour of trichloroethoxides of some transition metals.* Panjab.

29. Shiv Kumar. *Kinetics and mechanism of solidification of multicomponent systems.* Jammu.

30. Soneri, Mukesh Dhanjibhai. *Studies on metal chelates.* Bhavnagar.

31. Vats, Virender Kumar. *Monobromacetic acid solvent system and reactions of metal bromoacetates.* Panjab.

Earth Sciences

1. Kushwaha, Ram Awadh Singh. *Geomorphological studies along Beas River Basin.* Delhi.

2. Loyal, Raminder Singh. *Vertebrate palaeontology and biostratigraphy of the subathu formation, Subathu-Dharamapur Area, Himachal Pradesh.* Panjab.

3. Rastogi, Rakesh. *Petrology of the metasediments and the associated gneisses and granites around Chaur Mountain, Himachal Pradesh.* Panjab.

4. Rudramaniyappa, M.V. *Mineralogical, geochemical genetical and beneficiation studies of manganese ore deposit of Chikkanayakanhalli Schist Belt: Tumkur District, Karnataka State, India.* Gulbarga.

Engineering & Technology

1. Alaiban, Talal Saloom. *Investigations on certain aspects of rotor spinning and mechanism of formation of rotor spun cotton yarns into loop as well as geometry and dimensional properties of the resultant plain weft knitted structure.* IIT Delhi.

2. Badrinath, S.D. *Anaerobic contact up flow reactor for the treatment of distillery waste.* Nagpur.

3. Bapeshwar Rao, V.S.V. *Parametric studies on improved solar distillation systems.* IIT Delhi.

4. Chaturvedi, Ashok Vardhan. *A study of the dynamics of urban-rural imbalances.* IIT Delhi.

5. Doddipatla, Veeranna. *Some studies on hydrocarbon cracking and computational aspect of vapour-liquid equilibria for separation of hydrocarbon mixture.* IIT Delhi.

6. Garg, Sudhir Kumar. *Catalytic dehydration of methanol to dimethyl ether over molecular sieves 5A.* IIT Delhi.

7. Khanna, Indra Kumar. *Transportation planning and policy design for Delhi urban region: A system dynamics approach.* IIT Delhi.

8. Krishna, Vinod. *Mathematical modelling and optimization of heat rate of a thermal power plant.* IIT Delhi.

9. Mishra, Radhey Shyam. *Investigation in solar hot water systems.* IIT Delhi.

10. Rathore, Kailash Chandra. *Studies on mesophylic anaerobic digestion of water hyacinth for biogas production.* IIT Dehi.

11. Sanyal, Subrata. *Some investigations on electromagnetic radiation and scattering problems using uniform asymptotic theory of diffraction.* IIT Kharagpur.

12. Saxena, Prem Kumar. *Transportation techniques in fractional and related programming problems.* IIT Delhi.

13. Singh, Prabhat Kumar. *An analysis of two and three dimensional stress state in single edge cracked plate.* IIT Delhi.

14. Singh, Surendra Pal. *C-2C ladder based D/A converters for PCM codecs.* IIT Delhi.

15. Usmani, Mohammad Abdul Wasay. *Interface damping in blade attachment region.* IIT Delhi.

16. Verma, Anand Prakash. *Applications of multicriteria decision making techniques of joint optimization of dressing and surface grinding conditions.* IIT Delhi.

JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI

ANNOUNCEMENT FOR ADMISSION 1987-88

The University will hold Entrance Examination for admission to various programmes of study for the year 1987-88 in 24 undermentioned Centres spread over the country on 21st, 22nd and 23rd May, 1987 and as per details given below.

1. Ahmedabad 2. Bangalore 3. Baroda 4. Bhubaneswar 5. Bombay 6. Calcutta 7. Chandigarh 8. Cochin 9. Dehradun 10. Delhi 11. Gauhati 12. Hyderabad 13. Indore 14. Jaipur 15. Lucknow 16. Madras 17. Madurai 18. Patna 19. Pune 20. Ranchi 21. Shillong 22. Srinagar 23. Varanasi 24. Vijayawada.

SCHOOLS AND PROGRAMMES OF STUDY

1. School of International Studies

(i) **M. Phil./Ph.D.** in International Politics, International Organisation, Disarmament Studies, Political Geography, Diplomatic Studies, International Legal Studies, International Trade & Development, South Asian Studies, South-East Asian Studies, Central Asian Studies, Chinese Studies, Japanese and Korean Studies, West Asian and North African Studies, Sub-Saharan African Studies, American Studies, Latin American Studies, West European Studies and Soviet & East European Studies.

(ii) **M.A.** (Two-Year) Politics (International Studies).

II. SCHOOL OF LANGUAGES

(i) **Ph.D.** in Japanese, Persian, Russian and Philosophy (Modern Western Philosophy only).

(ii) **M. Phil/Ph.D.** in French, German, Hindi, Linguistics & English, Spanish and Urdu.

(iii) **M.A.** (Five Year Integrated Programme) (with entry points in 1st & 4th year) in Chinese, French, German, Japanese, Persian, Russian & Spanish and with entry point only in 1st year in Modern Arabic. Although the students are enrolled for Five-year Integrated Programme, they will also be awarded Bachelor's degree after successful completion of three years of course work.

(iv) **M.A.** (Two year) in Hindi, Linguistics, English and Urdu.

(v) **Pre-Degree Diploma** (One Year Intensive Programme) in Pushtu, Bahasa Indonesia & Korean.

III. SCHOOL OF SOCIAL SCIENCES

(i) **M. Phil/Ph.D.** The Curricular and research work is organised on an inter disciplinary basis at centres each with a focus on some major problems of study. Candidates will be admitted to programme of study in Social Sciences being offered the following centres.

1. Economic Studies & Planning, 2. Historical Studies, 3. Political Studies, 4. Regional Development, 5. Social Systems, 6. Educational Studies (Phychology, Sociology, Economics and History of Education) and 7. Social Medicine & Community Health.

(ii) **Master of Community Health (MCH) /Ph.D. Programme in Community Health.**

The Centre of Social Medicine and Community Health of the School also admits candidates who hold MBBS degree and at least one year's work experience after internship and those with Master's degree in Nursing with at least one year's work experience in Community Health in Nursing to **MCH/Ph.D.** programme in Community Health in addition to **M. Phil/Ph.D.** programmes in Social Sciences in Health.

(iii) **M.A.** (Two Year) in Economics, Geography, History, Political Science & Sociology.

IV. SCHOOL OF LIFE SCIENCES

Admission to the School is open to candidates from both Biology & Non-Biology streams, with adequate provision for remedial courses for non-Biology students.

(i) **M. Phil/Ph.D.** Course work & research facilities are available in modern areas of Life Sciences.

(ii) **M.Sc.** in Life Sciences (Two-Year).

V. SCHOOL OF ENVIRONMENTAL SCIENCES

(i) **M.Phil/Ph.D.** The programmes of the School are interdisciplinary in nature. Research facilities are available in the following fields. The application of Physics to environmental systems, Nonlinear Processes, Meteorology, Lasers, Microwaves and Bioelectromagnetics, Geochemistry of mineral deposits and sedimentary processes, Oceanography and Hydrogeology, Monitoring and management of pollution, Waste recycling, Limnology, Ecology, Toxicology, Environmental Physiology and Health, Biophysics, Molecular Biology and Genetic Engineering.

(ii) **M.Sc. Environmental Sciences (Two-year)** : This is an inter disciplinary programme which is being introduced from this year. It will include courses relevant to major aspects of the environment with some specialization in the areas of Atmospheric, Earth, Pollution and Biological Sciences.

VI. SCHOOL OF COMPUTER & SYSTEMS SCIENCES

(i) **M.Phil/Ph.D.** : The School conducts academic programmes leading to the degree of M.Phil/Ph.D. in diverse aspects of Computer & Systems Sciences.

(ii) **M. Tech.** (Computer Science & Technology) 3-semester programme.

This programme is designed to impart advanced knowledge in the field of Computer Science & Technology through instructions, seminars and project work.

On successful completion of M.Tech. Programme, the candidates will be eligible for registration for Ph.D. programme.

(iii) **Master of Computer Applications (MCA) 3-year Programme:**

The MCA programme is designed to provide necessary theoretical background and practical experience which would enable the students to develop computerised information system as well as to adequately equip them for computer applications in science and engineering to meet the growing manpower requirements in data processing.

VII. SCHOOL OF PHYSICAL SCIENCES

Ph.D. in Physical Sciences : The School conducts research and teaching programmes in border line areas of Physics & Chemistry, the emphasis for the present being on topics of Chemical Physics, Condensed Matter physics, Non-equilibrium Statistical Mechanics, Stochastic Processes and Nonlinear Dynamics.

VIII. CENTRE FOR BIOTECHNOLOGY

Ph.D. : The programmes of the Centre are interdisciplinary in nature. Facilities are available for pursuing research in the areas of (1) Tropical Disease: Pathogenesis, Antigen Identification, Development of new Vaccines, (2) Photosynthesis and Plant Molecular Biology; (3) Molecular Genetics: Gene Transfer and Expression in Enkaryotic Systems; (4) Oligo Nucleotide Synthesis. DNA Diognostics, Expression of Synthetic Genes and Protein Engineering.

RESERVATIONS

$22\frac{1}{2}\%$ (15% for SC and $7\frac{1}{2}\%$ for ST) and 3% of seats are reserved for SC/ST and Physically Handicapped candidates in all programmes of study.

SC/ST and Physically Handicapped candidates who have passed the respective qualifying examination irrespective of their percentage of marks are eligible to apply for admission and taking entrance examination.

HOW TO APPLY

Application form together with detailed instructions including eligibility conditions etc. for admission to each programme of study can be had either personally from the office of the Deputy Registrar (Admissions) on cash payment of Rs. 5/- per set of application form or through post by sending request alongwith crossed Indian Postal Order for Rs. 16.50 payable to Jawaharlal Nehru University, New Delhi, to cover the cost of one set of application form and postage, alongwith a self-addressed envelope of the size 28 cm x 20 cm to **The Deputy Registrar (Admissions), Jawaharlal Nehru University, New Mehrauli Road, New Delhi - 110067.**

There being different forms for different levels of programmes of study, it is essential that the candidate indicates clearly in his/her request as well as on the top of the self-addressed envelope the name of the programme of study for which the application form is required.

A candidate exercising all the three options may kindly indicate them in the same form, provided however these belong to the same level of programme.

DATE OF ISSUE OF APPLICATION FORMS	**: 16th February, 1987**
LAST DATE FOR ISSUE OF APPLICATION FORMS	**: 2nd April, 1987**
LAST DATE FOR RECEIPT OF COMPLETED APPLICATION FORMS	**: 10th April, 1987**

Note:

1. Candidates who are due to appear in the respective qualifying examination prescribed for eligibility for admission to a particular programme are also eligible to sit in the entrance examination as per conditions laid down in this regard. However in the event of selection, their admission shall be subject to their securing the prescribed percentage of marks in the qualifying examination and submission of all documents including final marksheet of the qualifying examination.
2. Direct Admissions to the Ph.D. Programme and Admission to Part-time Programmes of study will be notified separately in May, 1987.
3. **Announcement for Admission to M.Sc. Programme in Biotechnology will follow shortly.**

INDIAN INSTITUTE OF GEOMAGNETISM

COLABA, BOMBAY 400 005

(An Autonomous Institute under the Ministry of Science and Technology, Department of Science and Technology (DST), Government of India).

Advt. 1/87

Invites applications from Indian Nationals for the following temporary posts under the DST's thrust area programme on:

(i) Magnetotelluric Studies of Kinematics structures of lithosphere and upper mantle in the Himalayan collision zone, and (ii) Geophysical Studies of the Archean Lithosphere of Karnataka and Singhbhum.

(1) **Scientist (Reader)** — 1 post (Scale : Rs. 1100-50-1600 unrevised).

Qualification

Essential : (i) A good Master's degree (preferably Ph.D.) in Physics, Applied Physics, Geophysics, Radio Physics or Applied Mathematics of a recognised University.

(ii) Five years research experience as evidenced by published papers in geomagnetism and related fields.

Desirable : Experience in

(a) Electrical and Electromagnetic studies of the Earth's interior.

(b) Design and development of instruments for above studies.

(c) Numerical methods and computer programming.

(2) **Engineer (Fellow)** — 2 posts (Scale : Rs. 700-40-900-EB-40-1100-50-1300 unrevised).

Qualification

Essential : (i) Post-graduate degree in Engineering such as M. Tech or M.E. from a recognised University or Institute of Technology in Electronics, electrical engineering, computer science or instrumentation.

OR

(ii) A B. Tech. or B.E. in electronics or computer science or instrumentation from a recognised University or Institute of Technology with two year's of experience in a reputed research and development laboratory.

OR

(iii) A good M.Sc./M.Tech degree in Physics (Electronics). Applied Physics, Geophysics or Computer Science from a recognised University or Institute of Technology with three year's of research experience in a reputed research and development laboratory.

Desirable: Experience in digital techniques instrumentation for geomagnetic and geophysical measurements.

(3) **Technical Assistant** — 1 post (Scale : Rs. 1400-40-1800-EB-50 2300 revised).

Qualification

Essential : Diploma in Industrial Electronics/Electronic Instrumentation from a recognised polytechnic institute.

Desirable : 1 year's experience in fabrication, handling and repair of electronic instruments, using solid state devices.

NOTE: (i) If proper candidates are not available for the advertised posts, the vacancies will be filled up by making offers in the next suitable scale.

(ii) Qualifications are relaxable for otherwise suitable persons.

Prescribed applications form can be had by post from the ADMINISTRATIVE OFFICER, INDIAN INSTITUTE OF GEOMAGNETISM, DR. NANABHAI MOOS MARG, COLABA, BOMBAY 400 005, by sending a self-addressed and stamped (Re. 1.00) envelope of 10 cm x 25 cm size. Completed applications should be sent in a cover superscribed with application for the post of...... so as to reach the Administrative Officer within 30 days of the publication of this advertisement.

BANARAS HINDU UNIVERSITY

ANNOUNCEMENT FOR ADMISSION FOR 1987-88

The University will hold ENTRANCE ADMISSION TEST (EAT) for admission to various courses of study as mentioned against each Faculty for the Session 1987-88 at the undermentioned Centres during the period 21-6-1987 to 30-6-1987:

VARANASI, DELHI, BOMBAY, HYDERABAD, MADRAS, RANCHI, CALCUTTA, JABALPUR AND JAIPUR except that the test in respect of admission to B.F.A., M.F.A., B. Mus., M. Mus. courses shall be held at VARANASI Centre only. For 3-Year Shastri (Hons.) additional Centres will be Puri and Gauhati.

Provided there are sufficient numbers of candidates for each centre. It shall be open to the University to cancel any of the above centres. Candidates should therefore, give choice for two centres, in order of preference, in their application forms. Candidates must note that centre of examination once allotted to a candidate shall not be changed and any request for such a change will not be entertained at any stage. The centre allotted will be indicated in the Admit Card.

Faculty	Course of Study	Eligibility Conditions.
1. Arts/Social Sciences/Mahila Mahavidyalaya (Girls only)/Evening College.	3-Year B.A. (Honours).	Passed +2 of 10+2 pattern or an equivalent examination with 45% marks in aggregate.
2. Science/Mahila Mahavidyalaya (Girls only).	3-Year B.Sc. (Honours)	Passed +2 of 10+2 pattern or an equivalent examination with 45% marks in Science subjects (Physics, Chemistry, Maths, and/or Biology).
3. Commerce/Evening College	3-Year B. Com. (Honours).	Passed +2 of 10+2 pattern or an equivalent examination with Commerce or Economics or Maths. as a subject with 45% marks in aggregate.
4. Sanskrit Vidya Dharma Vijanana	3-Year Shastri (Honours).	Passed +2 under 10+2 pattern with Sanskrit OR Madhyama Examination with 40% marks in aggregate.
संस्कृत विद्या धर्म विज्ञान संकाय	त्रिवर्षीय शास्त्री (आनर्स)	संस्कृत से +2(10+2) के अन्तर्गत उत्तीर्ण अथवा मध्यमा परीक्षा 45 प्रतिशत अंकों के साथ (कुल योग में)
FOR SC/ST CANDIDATES	Passed +2 of 10+2 pattern or an equivalent examination with subject specifications noted above.	
5. Arts	1-Year B.J., B. Lib. Sc., B.P. Ed.	(Graduate under 10+2+3 OR Postgraduate with 50% Marks in aggregate. In the case of SC/ST 40% marks in Aggregate.
	1-Year M.J.	B.J. with 50% marks in aggregate.
	1-Year M. Lib. Sc.	B. Lib. Sc. with 50% marks in aggregate.
	1-Year M.P. Ed.	(B.P. Ed. with 50% marks in Theory, Practice and Proficiency—separately.
	2-Year M.A. (Museology).	B.A. (Hons.) under 10+2+3 in History/A.I.H.C. and archaeology/Sanskrit or in allied subjects with 50% marks in the concerned subject as well as in the aggregate.
6. Education	1-Year B.Ed.	Graduate under 10+2+3 with 50% marks in aggregate OR M.A./M.Sc./M.Com. with 50% marks in aggregate. In case of SC/ST only Pass marks are required.
	1-Year M.Ed.	B.Ed. + Graduate under 10+2+3 pattern or B.Ed. with Post-graduate Degree.

7. Law	3-Year LL.B.	B.A./B.Sc./B.Com. (Hons.) under 10+2+3 pattern OR B.Tech., B.Sc., (Ag.)/MBBS with 45% marks in aggregate. In case of SC/ST only 5% relaxation in marks in the above degrees.
	2-Year LL.M.	3-Year LL.B. with 50% marks in aggregate.
8. Performing Arts	3-Year B. Mus.	(a) +2 of 10+2 pattern of an equivalent examination and 3-Year Dipl. in Music in the subject concerned. (b) 50% marks in the Practical of Diploma Examinations.
	2-Year M.Mus. (Vocal/Instrumental).	+2 of 10+2 pattern or an equivalent examination and 3-Year B.Mus. in the subject with 55% marks in the Practical of B. Mus. examination.
	2-Year M. Musicology	B.A. with Music under 10+2+3 pattern with 55% marks in Music OR B.Mus. with 55% marks each in Theory and Practical with a graduate degree.
9. Visual Arts	5-Year B.F.A.	Passed 10th Class or equivalent examination with 45% marks in aggregate. In the case of SC/ST only minimum Pass marks in required. Maximum age 21 years as on 31-7-87.
	2-Year M.F.A.	B.F.A. examination in the subject concerned of 10+5 or 10+4 pattern with 55% marks in Aggregate.

RESERVATION : 15% and 7.5% seats are reserved for S.C./S.T. respectively. 3% seats for Orthopaedically Handicapped candidates provided they qualify in the Test (EAT).

HONOURS AVAILABLE AT B.A./B.Sc./B.Com. LEVEL

FACULTY OF ARTS		Arabic, Bengali, Hindi, Kannada, Marathi, Persian, Pali, Sanskrit, Tamil, Telugu, Urdu, Nepali, English, Chinese, German, French, Russian, Ancient Indian History, Culture and Archaeology, History of Arts, Philosophy, Geography, Mathematics and Statistics.
FACULTY OF SOCIAL SCIENCES		Economics, History, Political Science, Sociology and Psychology.
MAHILA MAHAVIDYALAYA : (Girls only)	B.A. (Arts)	Bengali, Hindi, English, Sanskrit, AIHC & Archaeology, History of Arts, Home Science, Philosophy, Music (Instrumental/Vocal), Painting, Geography and Mathematics.
	(Social Sciences)	Education; History, Political Science, Sociology, Psychology.
	B.Sc.	Botany, Chemistry, Geography, Home Science, Mathematics, Physics, Psychology and Zoology.
FACULTY OF COMMERCE		Commerce.
FACULTY OF SCIENCE		Botany, Chemistry, Geography, Geology, Mathematics, Physics, Psychology, Statistics and Zoology.
EVENING COLLEGE	B.A. (Arts)	Hindi, Urdu, English, Sanskrit, Philosophy, A.I.H.C.
	(Soc. Sc.)	Education, Economics, History, Political Science, and Sociology.
	B.Com.	Commerce.

PROCEDURE FOR TEST (EAT)

The Entrance Test will be of three hours duration and papers will be of Objective Short-answer type questions. The medium of test will be both Hindi and English.

PASS MARKS IN THE TEST (EAT)

Minimum is 35% for general candidates and 25% for S.C./S.T. However in the case of LL.M. and M. Ed. minimum pass marks is 40% for general candidates and 30% for SC/ST. For M.Mus., M. Musicology, M.F.A. 50% marks each in Theory and Practical; For M. Lib. Sc., M.J. and M.P.Ed. and M. Museology 50% marks in the Test and 40% marks for S.C./S.T.

COST OF FORMS AND TEST FEE

Rs. 5/- per set of application form. Application forms can be obtained either personally from the Office of the respective Deans of Faculties or Principals of Colleges concerned OR THROUGH post by sending request alongwith crossed Postal Order for Rs. 12/- including postal charges to the respective Deans of Faculties/Principals of Colleges concerned payable at Malviya Nagar Post Office, B.H.U., Varanasi 221005, along with a self-addressed envelope of the size of 28 x 20 cm. Examination fee in each case shall be Rs. 40/- (Rs. 10.00 for SC/ST and for the Sanskrit Vidya, Dharma Vijanana Sankaya).

Date for issue of Application Forms : **25th March, 1987**
Last Date for Postal Request for Forms : **April 10, 1987**
Last Date for Sale of Forms from Counter : **April 28, 1987.**

NOTE: APPLICATIONS DULY COMPLETED AND ACCOMPANIED BY ALL THE RELEVANT MARKS-SHEETS, CERTIFICATES, CASTE CERTIFICATE INDICATED ABOVE, IN FAVOUR OF THE CONTROLLER OF EXAMINATIONS, BANARAS HINDU UNIVERSITY SHOULD REACH THE CONTROLLER OF EXAMINATIONS, BANARAS HINDU UNIVERSITY, VARANASI - 221005 ON OR BEFORE **30th APRIL, 1987.** NO APPICATION SHALL BE ENTERTAINED AFTER THE LAST DATE FIXED BY THE UNIVERSITY IS OVER.

Candidates who are due to appear in the respective qualifying examination prescribed for admission to a particular course are also eligible to appear in the Entrance Admission Test (EAT) as per conditions laid down in this regard. However, in the event of selection, their admission shall be subject to their securing the prescribed percentage of marks in the qualifying examination and submission of all documents including final marks-sheet of the qualifying examination.

REGISTRAR
Banaras Hindu University
Varanasi-221005

GURU GHASIDAS UNIVERSITY BILASPUR (M.P.)

No. 1335/UTD/86-87 **Dated 27-2-1987**

Advertisement

Applications in the prescribed form are invited for the following posts. Forms with details of the prevailing UGC qualifications will be supplied on request, which should be accompanied by a self addressed stamped envelope with postage stamps of Rs. four. Sven copies of application, complete in all respects, must reach the undersigned latest by **31-3-87**. The Dearness Allowances and other perquisites will be as per University Statutes:-

1. **Professor** (Rs. 1500-2500)—One each in Economics & Commerce.
2. **Reader** (Rs. 1200-1900)—One each in Library Science and Physical Education.

Qualification

(a) **Essential :** As prescribed by the University Grants Commission, New Delhi for Professors and Readers in the Universities.

(b) **Desirable**

(i) **For Professor Economics**

Preference shall be given to candidates specialised in or having experience of research and studies in the field of weaker section of society particularly tribals, harijans and women, and in Rural Development.

2. No TA/DA will be admissible to the candidates, if called for interview. The Selection Committee may consider the case of an eminent/suitable person in absentia.

3. Applicants who are in the employment of Govt./Semi Govt. Organisation/ Educational Institute or of any Govt. Undertaking must send their applications through proper channel.

4. The University reserves the right not to fill up the posts.

R.C. Parmar
REGISTRAR

SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING

(Deemed University)

Vidya Giri, Prasanthinilayam-515 134 (A.P.)

The Institute invites applications for positions at the level of Professor, Readers and Lecturers in the Faculty of Business Management in the following areas:

1. Behavioural Science
2. Personnel and Industrial Relations
3. Management and Information Systems
4. Information Technology
5. Marketing Management
6. Financial Management and International Finance
7. Business Policy and Organisation Development.

Qualifications will be same as laid down by the University Grants Commission.

Interested candidates may write to the Registrar within 20 days of advertisement for prescribed application forms.

Selected persons will be eligible for UGC scales of pay and be governed by the allowances and other benefits including the Contributory Provident Fund-cum-Gratuity Scheme of the Institute.

K. Chakravarthi
REGISTRAR

THAPAR INSTITUTE OF ENGINEERING & TECHNOLOGY : PATIALA

(An Institution Deemed to be a University)

Advertisement No. TI/3/87

Applications are invited for the permanent posts of Professors, Assistant Professors and Lecturers as per details given below:

Posts	Specialization	No of Posts
1. CIVIL ENGINEERING DEPARTMENT		
Professor (2)	Environmental Engineering	1
	Structures/Soil Mechanics	1
Assistant Professor (2)	Hydraulics & Irrigation	1
	Soil Mechanics/Structure	1
Lecturer (5)	Hydraulics & Irrigation	1
	Structures	3
	Geo-Technical/Geology	1
2. ELECTRICAL & ELECTRONICS ENGINEERING DEPARTMENT		
Professor (2)	Digital Electronics with specialization in Microprocessors/Electrical Communication.	1
	Control Systems	1
Assistant Professor (1)	Electronics/Instrumentation	1
Lecturer (10)	Electronics/Communication	4
	Instrumentation & Control	3
	Electric Power/Machines/Drives	3
3. MASTER OF COMPUTER APPLICATIONS (MCA)		
Professor (2)	Computer Science	1
	Operations Research/Management Science with experience in Computer Applications	1
Assistant Professor (2)	Computer Science	1
	Management Science/Operations Research with experience in Computer Applications	1
Lecturer (2)	Computer Science	1
	Management Science	1
4. MECHANICAL & INDUSTRIAL ENGINEERING DEPTT.		
Professor (2)	Production (Non-Conventional Machining)	1
	Mechanics & Design (CAD)	1
Assistant Professor (2)	Production	1
	Heat Power/Fluid Mechanics	1
Lecturer (4)	Industrial	1
	Production	1
	Heat Power/Fluid Mechanics	1
	Mechanics & Design (Dynamics)	1
5. APPLIED SCIENCES & HUMANITIES DEPARTMENT		
Lecturer (4)	Physical/Organic/Solid State Chemistry	1
	Operation Research/Numerical Analysis (Experience of Computer Applications).	1
	Sociology (with background of Economics/Psychology in B.A./M.A.).	1
	Postgraduate Degree in Physics and Material Science	1

Pay scales, minimum qualifications and experience for the posts are as approved by the U.G.C. Candidates with first Class B. Tech. Degree may be considered for the posts of Lecturers, if suitable M. Tech./Ph.D. candidates are not available. Persons with Ph.D. degree and aptitude for research will be preferred. Full details of minimum qualifications and experience for each post and application form may be obtained by writing to the Registrar.

Application on prescribed form giving full particulars including names and addresses of three referees and accompanied by Crossed Indian Postal Order/Bank Draft of Rs. 10/- in favour of Thapar Institute of Engineering and Technology, Patiala should reach the undersigned by **25-3-87**. However, Scheduled Caste and Scheduled Tribe candidates and candidates from abroad are exempted from payment of application fee.

REGISTRAR

OFFICE OF THE PRINCIPAL REGIONAL ENGINEERING COLLEGE

HAMIRPUR-177 001 (HP)

Principal Regional Engineering College, Hamirpur (HP) invites applications for the following posts:-

I. Professor in Electrical Engineering, Civil Engineering Computer Engineering and Mechanical Engineering (One Post Each) in the Pay Scale of Rs. 1500-2500 (UGC).

Educational Qualifications

Essential

1. Basic: Bachelor's degree in appropriate branch of Engineering recognised by the University with atleast 1st class at Bachelor's Degree and/or Master's Degree level.
2. Doctorate Degree in concerned branch of Engineering/specialisation of subject in appropriate branch of Engineering recognised by the University.
3. Atleast 10 years experience in teaching and or research in an Institution of University standard.
4. Experience of guiding research at Doctorate level.

Desirable

1. Professional Scientific/Research work of outstanding merit.
2. Experience in curriculum development.

3. Published work of high standard.
4. Membership of Professional bodies.
5. Age between 35 to 50 years.

II. Assistant Professor in Mechanical Engineering, Electrical Engineering and Computer Engineering (One Post Each) in the Pay Scale of Rs. 1200-1900 (UGC).

Educational Qualifications

Essential

1. A first class (or equivalent) Master's Degree/Doctorate Degree in an appropriate field of Engineering/Technology.
2. Consistently good academic record with a Bachelor's Degree in an appropriate branch of Engineering/Technology, First class at Bachelor's Degree and/or Master's Degree level.
3. At least 5 years experience in teaching/research at the Institute of University standard.

Desirable

1. Professional/Scientific/Research work of outstanding merit.
2. Experience in curriculum Development.
3. Published work of high standard.
4. Membership of professional bodies.

Age : Below 45 years.

III. **Section Officer (Accounts) in the Pay Scale of Rs. 800-1400 + 50 Special Pay (One Post).**

Educational Qualifications

Essential

1. Graduate.
2. S.A.S. qualified (Ordinary branch).
3. 10 years experience out of which he should have worked for 3 years as SAS, preferably in Public Works Accounts.

Age : Below 50 years.

IV. **Mess Manager (One) in the Pay Scale of Rs. 570-1080.**

Educational Qualifications

Essential

1. Matric.
2. 2 years Experience in the line.
3. Preference will be given to those who have a Diploma in Catering from some Recognised Institution/University.
4. Knowledge of maintenance of Mess Accounts.
5. Ex-Army Personnel.

Age : 18 to 32 years for General Candidates;

(ii) As per Government order prescribed for Ex-Serviceman.

V. **Junior Scale Stenographers (Three) in the Pay Scale of Rs. 450-880 (One Post Reserved for Scheduled Caste, One for Scheduled Tribe and One for Backward Class).**

Educational Qualifications

Essential

1. Matric
2. Typing speed in English & Hindi of 35 and 30 W.P.M. respectively and shorthand in English with speed of 100 w.p.m. and in Hindi 80 w.p.m.
3. Two years experience in the line.
4. **Age:** 18 to 32 years.

VI. **Clerk (One) in the Pay Scale of Rs. 400-10-450/15-525/15-600. Reserved for Scheduled Caste.**

Educational Qualifications

Essential

1. Matric
2. Typing speed in English and Hindi of 30 and 25 w.p.m.
3. One year experience preferably in the University or College.
4. **Age :** 18 to 32 years.

VII. **Catalogue Typist-cum-Semi-Professional Assistant (One) in the pay scale of Rs. 570-15-600-20-700/25-850/30-1000-40-1080.**

Educational Qualifications

Essential

1. B.A./B.Sc./B. Com.
2. Certificate course/Diploma in Library Science of minimum one year duration.
3. Knowledge of English Typing at the speed of 30 w.p.m.
4. Minimum one year working experience in a College/Technical Library.
5. **Age :** 18 to 32 years.

The posts shall carry the pay and allowances as per UGC grades (for faculty positions) and as admissible to the State Govt. employees of Himachal Pradesh (for ministerial posts), approved by the Board of Governors from time to time.

Candidates in Government Service/Semi-Government Service/Public Undertaking must apply through proper channel.

Age limit relaxable in case of well qualified candidates.

No rail/bus fare or T.A./D.A. will be paid to the candidates appearing for interview.

The applications should reach the office of the Principal, Regional Engineering College, Hamirpur-177 001 by **30th March, 1987.**

The candidates should attach with application a self addressed envelope 4" x 10" duly stamped worth Rs. 4.50 superscribed 'APPLICATION FOR THE POST OF (Name of the Post) REGIONAL ENGINEERING COLLEGE.

The application should be typed, giving the name of candidate, father's name, date of birth, address for correspondence, permanent address, Educational qualification, Category to which you belongs etc. The photostat copies of testimonials (duly attested by the candidate himself) alongwith a recent Passport size Photograph should be attached with the applications.

A person applying for more than one post should send a separate application for each post.

The Selection Committee reserves the right to negotiate with suitable person or persons, if necessary, who may not have applied formally.

The Principal reserves the right to fill up or not to fill up, to increase or decrease the post/s or to call only selected candidates for interview.

Each application should accompany a crossed Postal Order in the name of Principal, Regional Engineering College, Hamirpur (HP) amounting to Rs. 7.50. No Draft/Cheque shall be accepted. In the event candidate not being called for interview or not being selected for the particular post, the Postal Order shall stand forfeited to the Regional Engineering College.

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House,
16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429.
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

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UNIVERSITY NEWS

VOL. XXV MARCH 23
No. 12 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

1 APR 1987
MYSORE

Teacher Training for Special Education

Some Sociological Considerations

S. P. Ruhela*

> *Nothing is costlier to the nation — especially a low-income country— than to allow a child to be exposed (before, during or afterbirth) to the risk of physical or other impairment, let it escalate into an irreversible disability and then to look for resources for rehabilitation that can never be adequate.*
>
> *—David P. Haxton, UNICEF Regional Director for South Central Asia, New Delhi*

The urgency of developing proper kinds of teacher training programmes for preparing a very large number of qualified, efficient and dedicated school teachers for imparting education in Integrated Schools and Special Schools should, atleast by now, be clear to teacher educators, educationists and educational researchers.

The seriousness of the problem can be understood from the following data:

(1) According to the National Policy on Education 1986: Programme of Action:

—Out of 12 million disabled persons (in India) 2.6 million (1.2 million Learning Handicapped; 0.74 million Speech Handicapped; 0.53 million Hearing Handicapped, 0.12 million Visually Handicapped; and 10% have more than one handicaps) fall in the age group 4-15 years. To this must be added 1.7 million Mentally Handicapped children.

—Over 1.4 million children fall in the age group 0.4 years which is relevant for indentification, diagnosis, assessment, early stimulation and preparation for education.

—Not more than 5% of the blind and deaf children and, perhaps, 0.50% of the mentally retarded are estimated to be in about 800-1000 Special Schools. Most of these Special Schools are located in metropolitan cities and other urban centres. Rural areas where about 80% of these children are located remain practically unserved by educational facilities.

—To cater to the needs of about 2 million severely handicapped children, 10,000 Special schools with 150-200 children each will be needed.

—The enrolment of Learning Handicapped and other mildly handicapped children and their retention in common schools will be increased by 25% each year during the current plan.

—In the Eighth Five Year Plan another 5000 Special Schools at sub-district level will be opened to bring the total number of schools at 7500. The number of these schools will have to be increased to 10,000 during the Ninth Five Year Plan.

—Most of the Special Schools are run by voluntary bodies, most of which lack in proper equipment, facilities and trained teachers.

**Head, Department of Teacher Training & Non-Formal Education, Jamia Millia Islamia, New Delhi - 110025.*

(2) Accorging to other sources:

—About 10% of India's child population is handicapped, taking Rs. 900-1000 as the average annual expenditure on the education of a handicapped child, if our nation wants to provide education to all its handicapped children, it will need about Rs. 3000 crores annually for it.

—Only 30,000 children receive help from the 800 voluntary agencies and state institutions offering education and training services.

In the context of these staggering statistics, we can very clearly appreciate that there is an urgent need for providing on a very large scale facilities for the preservice as well as inservice training of teachers for integrated and special schools, and also for psychologists, educational supervisors, examination/evaluation experts, and other supporting staff like speech therapists etc.

II

EXISTING TRAINING FACILITIES

So far only 3-4 Universities are offering training courses in special education—SNDT Women's University and the Department of Teacher Training and Non-Formal Education in the Jamia Millia Islamia being somewhat known. Without going into the weaknesses, defects or failures of their programmes, it can broadly and safely be said that their training programmes have so far not come up to the expectations of any objective analyser—both in terms of their output and quality. The National Institute of the Visually Handicapped has been running a course for training teachers for the blind, and like them some other specialised institutes have been offering some sort of courses to train teachers. Such courses are not recognised degrees and diplomas like those of the Universities, but are far better in their content and effectiveness, although very few teachers get trained that way.

The National Policy of Education 1986 : Programme of Action has, with high hopes, entrusted to the NCERT, its Regional Colleges of Education and the National Institute of Educational Planning and Administration (NIEPA) most of the responsibility of training teachers, production of resource materials and tools for psycho-educational assessment and diagnostic tools for identification of learning problems, documentation of research and innovative and successful experiments and training of educational administrators and supervisors and every thing else relating to Special Education.

These pious hopes are likely to be belied. As a sociologist of education, it is my prognostication based on concrete realities of which the Ministry of Human Resource Development, Government of India, seems to be blissfully ignorant. The Regional Colleges of Education have so far no tradition of teaching or training in the field of special education. They don't have qualified staff in special education. They will take a long time to equip themselves with books, equipments, teaching aids, teachers and other supporting staff to start any meaningful courses to train teachers for the institutions of the handicapped. And more than all these limitations, the Regional Colleges cannot start any degree course on their sweet will, for they are themselves not Universities or Deemed Universities. They will have to get approval from the Universities to which they are affiliated, to start any course on Special Education. It is not an easy thing. The Regional College of Education, Ajmer wanted to start B.Ed. (Special Education); its proposal was discussed in the meeting of Board of Studies last year in the University of Rajasthan, and rejected. Such hurdles are bound to be there before the Regional Colleges. Even the NCERT does not have the status of a University or Deemed University.

The NCERT at its headquarters in New Delhi has recently started a unit on Special Education in the Department of Teacher Education. Only less than a year back a Professor, one or two Readers and one or two Lecturers have been appointed. The unit will need a lot of time to develop its resources in terms of books, research references, staff, institutional contacts, etc., so as to be able to meet the challenge posed before it in the Programme of Action document. The NIEPA just does not have any expertise, whatsoever, to train teachers, teacher educators, educational administrators and supervisors in the field of Special Education.

In view of these realities of the prevailing scenerio, I am of the opinion that unless more and more university departments of education themselves take the initiative of starting training courses in special education, no substantial progress in the area of education of the handicapped in India can be possible, and there is every danger that the so-called targets or professed goals to be achieved in the VII and IX Five Year Plans, as laid out in the Programme of Action document might just remain as wishful thinking as has been the case with many educational targets in our several previous Plan documents.

III

SOCIOLOGICAL CONSIDERATIONS

It is on the basis of our own empirical experience in the Jamia Millia Islamia, which has, since 1982, been engaged in imparting training in Special Education—offering B.Ed. (Special Education) course during 1982-84, and thereafter offering Advanced Diploma in Special Education since 1984, as well as my interaction with a number of teacher educators in other institutions, and also my perusal of the literature being produced in Hindi and available in English on special education for our teachers and student teachers, that I have come to the following sociological generalizations. I wish to share them with co-professionals so that they may gain from such experiences, and start their courses with great caution and care.

1. The field of Special Education is new, though it has been vigorously talked about throughout the world since the International Year of the Handicapped, the Central Government and the University Grants Commission (UGC) have been extremely generous in agreeing to support programmes of training and education in this field. They seem to be impatient to offer funds, just for the asking to start any such programme. Even then most of the universities and colleges and other institutions and researchers have by and large remained untempted. They have not yet appreciated the need or importance of taking up programmes in this emergent field, or may be they do not wish to fall in bureaucratic procedural traps.

2. The voluntary bodies come forward to avail of funds for the welfare and rehabilitation of the handicapped from the Govt. of India, but from Central Social Welfare Board in the Social Welfare Ministry. Some voluntary bodies do good work, and others just eat up much of the funds, as is well known in the country. Some voluntary bodies like the YMCA in Delhi have started offering unrecognised one to three months' duration certificate courses in Special Education. Is it for making money or rendering social service or professional training of adequate competence and integrity—we do not know, for the needed equipments, books, journals, material aids, trained staff are lacking with them. Their products who receive 1 to 3 months part-time training manage to get jobs. In a few years, we can expect a thriving business of all sorts of private and voluntary bodies producing special education teachers on commercial scale. Who will check them, and how?

3. In university departments of education, starting of special education teacher training programmes with the help of foreign educated or so-called highly specialised special educationists creates special problems of professional adjustment and socialization. Such experts do not wish to work in team spirit with other teacher educators; they do not wish to follow the departmental norms and procedures of time table, teaching, purchases, stock, conception of separate Unit or separate department within the department, for they say that they are dealing with "special education". Their separatist tendencies create various kinds of administrative, academic, and social and personal misunderstanding, dissensions, and problems, and they ultimately lead to the disintegration or weakening, if not death, of their special education. Alienation and maladjustment becomes a phenomenon to reckon with. Therefore, right from the beginning due care should be taken to integrate the working of special education course unit with the total work of the department of education, and all rules of administration clearly made known to the staff.

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4. Special education is one area in which no meaningful teaching can be done if necessary equipment, material aids and trained staff is not provided for in the first place. But in reality, this simple fact is not understood by the UGC and the university authorities or college or department heads. Having shown their initial zeal in providing grants to run a teacher training programme initially, the UGC bureaucracy does not bother to release budget every year in time. Therefore, it becomes impossible or atleast very difficult to purchase the necessary equipment, teaching aids, books, journals etc. University administration also drags its feet. Appointment of regular and qualified staff are not done for a long time. The newly created vacancies in special education, for which UGC has not so far prescribed any proper qualifications and left it to the discretion of the universities themselves, are not filled till convenient candidates can be found. Scholarships to students and salaries to teachers are delayed for months. Seminars and extension lectures, envisaged in the initial budget sanctioned by the UGC later on remain a wishful thinking for want of funds. Building grants for the special education block fall short in a few years; buildings are not ready for a long time. We in the Jamia have gone through all this sociological experience. The sum and substance is, it is indeed difficult to keep on running a special education programme for training teachers in the universities also because of administrative anomie prevailing in the country.

5. The books written by foreign experts on special education being in English, are difficult for an average teacher, student teacher and worker of special education. Recently, I have seen some articles in Hindi published in journals of NCERT and elsewhere. The language used is Sanskritised difficult Hindi. Therefore, their utility for the common reader is also doubtful.

6. The tendency of the university departments (like the SNDT and Jamia) is to try to train teachers for integrated education as well as for specialised kinds of handicapped like Visually handicapped. Orthopaedically handicapped as well as mentally retarted. Thus they try to bite too large a piece of bread than what they can infact chew properly. They erroneously think that it is their task to prepare teachers for serious disabilities like Visual handicaps and orthopaedic handicaps. They cannot do these tasks for they cannot have all the needed expertise, equipment and resources. They should confine themselves to providing training in integrated education and the specialization of mentally retarded or learning disabled which task they can properly do with the help of other teacher educators in the university department of education. Besides teaching thus, they should undertake extension, publication and survey and research activities to enrich their knowledge and enlighten the community in the prevention and cure of the handicaps.

7. The university departments very often pay only lip service to the concept of inservice teacher education; they do only the preservice teacher training in reality. The UGC must compel them to do both these tasks. Only then will the backlog of untrained teachers in special schools be cleared.

8. The norms of staff, building, equipment etc., for special schools are not finalised and duly circulated and enforced though the NCERT/NCTE had reportedly taken up that task in 1984. Without such norms, special education agencies will mushroom unchecked and that will do greater harm to these already handicapped clients.

9. The Indira Gandhi National Open University is best suited to start diploma courses for teachers of special education, as it will be having the facilities of TV, radio, correspondence lessons etc. It is a pity that it is shying away from this great responsibility to the nation.

10. Generally we provide special education without any approach. We only think of the handicapped, and address all our programmes to his needs. As a matter of fact, as Mahfoud Boucebci and Marie-Theresa Brau in their paper "Training Specialised Staff for the Mentally Handicapped: An approach for developing countries" (in Assignment Children, UNICEF, Spring 1981) have suggested:

> "Training programmes should be designed and implemented on the basis of :
>
> (a) a three dimensional approach: knowledge of the normal child, self-knowledge, and knowledge of the handicapped;
>
> (b) the prospect that rehabilitation can always be taken one step further, even though this may often be a long and painful process, in accordance with one imperative—to achieve maximum socialisation; and
>
> (c) a psychopedagogical plan corresponding to each of the levels, but nevertheless compatible on all points with the unified approach and integrated view of man.

To sum up, I think I can do no better than quote David P. Haxton, UNICEF Regional Director for South Central Asia: "To accomplish what we appear to agree is necessary, I submit to you that we need the (political) will to do so; and less pious rhetoric. We need to have practical proposals, not repetitive resolutions. We need personal commitment and practice, not recommendations for others to implement. We must learn to conduct ourselves properly in relation to disability in our own family."

□

A CENTRAL TRIBUNAL FOR UNIVERSITIES ?

The Law Commission of India has been entrusted with the task of devising and recommending judicial reforms inter-alia exploring the need for decentralisation of justice by establishing other tiers or systems within the judicial hierarchy. The Constitutional power of issuing prerogative writs conferred on High Courts and the Supreme Court of India by articles 226 and 32 of the Constitution coupled with High Courts' original jurisdiction under special statutes like Companies Act 1956, advisory jurisdiction under tax laws, and the fact that the decisions of not only all quasi-judicial tribunals but also administrative decisions are subject to review by them, has made High Courts an institution in which all sorts of disputes converge. This has resulted in unmanageable backlog of cases and inordinate delay in their disposal.

Again, by conferring power of superintendence over all courts and tribunals under article 227 of the Constitution, it was assumed that a High Court judge would be able to deal with not only civil and criminal cases but also cases requiring such specialised knowledge as tax references, labour disputes, educational disputes etc. While it is true that the judges, in course of time, develop capacity to deal with all kinds of specialist disputes, it is also true that a long time is spent in familiarising oneself with specialist knowledge. System of rotating judges makes it all the more difficult.

Taking its cue from Chapter XIV A of the Constitution introduced by the Constitution (42nd Amendment) Act, 1976 that empowers the Parliament to enact a law for setting up a tribunal for various special kinds of disputes, the Law Commission after proposing a participatory model of justice for disputes emanating from rural areas and recommending establishment of a National Tax Court, has focussed on disputes emanating from Centres of Higher Education. The Commission feels that some more decentralisation would not only reduce pressure on the High Courts and the Supreme Court of India but would also permit association of experts with tribunals set up for resolving disputes of specialised nature. In this context the Law Commission has prepared a working paper, "Decentralisation of Administration of Justice: Disputes Involving Centres of Higher Education". The salient portions of the paper are published below for wider audience. Readers are welcome to send in their suggestions on the various issues raised in the paper, latest by **30th April, 1987,** *to the Law Commission, Shastri Bhawan (7th Floor), New Delhi : 110 001.*

The present working paper concentrates on a new set of disputes requiring specialist knowledge to deal with, which have prominently figured in the High Courts in the last decade. Numerous disputes land in the High Courts involving the Universities on the one hand, and the alumni on the other, or between the Universities and the teaching staff as well as ministerial staff. Almost allied to the same are the disputes involving University and the Government in the matter of affiliation of colleges, autonomy of the University, financial independence of the Universities, appointment of Vice-Chancellors and similar disputes. Disputes in this behalf are of recent origin. But as years roll by, they tend to multiply.

The thirst for higher education is growing at an accelerated speed every year. As the demand for seats in institutions of technical learning such as engineering, medicine, agriculture, etc., is increasing, the area of conflict is widening. The situation becomes acute when the Government in discharge of its obligation under article 15(4) of the Constitution reserves certain number of seats for socially and educationally backward classes of citizens or for the scheduled castes and the scheduled tribes. Article 15(4) provides as under:-

> "15(4) Nothing in this article or in clause (2) of article 29 shall prevent the State from making any special provision for the advancement of any socially and educationally backward classes of citizens or for the Scheduled Castes and the Scheduled Tribes."[1]

In order to give opportunity to the members of socially and educationally backward classes of citizens or members of the Scheduled Castes and Scheduled Tribes, to advance and intermingle with the mainstream of life, Government reserves certain percentage of seats in institutions of technical education and higher education in favour of members of such classes. To that extent, the seats available for entry on merit get reduced. The competition gets accentuated. Further, the number of seats in such institutions have not expanded or proliferated in relation to the demand for such seats. All these contribute to a keen tussle for acquiring a seat in such institutions. This tussle more often leads to confrontation or court cases. Practically, for over the last ten years, admissions to medical colleges and engineering colleges have landed in the High Courts and the Supreme Court of India. Frankly, the courts are ill-equipped to deal with these disputes expeditiously and with a sense of urgency. A brief resume of the important decisions of Supreme Court and High Court would bear out what is stated herein above.

---

[1] Added by the Constitution (First Amendment) Act, 1951, s.2.

There are numerous decisions of the Supreme Court of India and High Courts bearing on the question of admissions to professional institutions, more especially the Engineering and Medical faculties. There are decisions also dealing with the policy of reservations in favour of the members of socially and educationally backward classes and Scheduled Castes and Scheduled Tribes. It is not proposed to discuss all the decisions in this working paper. Only some will be referred to highlight the tentative approach of the Law Commission that disputes involving University Administration, admission to university courses, disciplinary proceedings against university teachers, cannot be dealt with effectively like the run-of-a-mill, small petty legal squable, the decision in such disputes must be informed by the wider perspective of role of education in a developing country, discipline in the formative years, future leadership and enthroning of values. If handled differently, it is likely to cause dislocation in the University administration.

Selections

To begin with, a reference to one such case would be instructive. There were two vacancies in the cadre of Professor of Medicine in the State Medical Colleges in the State of U.P. As both the posts were within the purview of the State Public Service Commission, the Commission advertised posts inviting applications from eligible candidates, the eligibility criterion having been set out in the advertisement itself. The Public Service Commission selected two persons for the aforementioned two posts. This selection was challenged by some of the competing candidates *inter alia* contending that the selectees did not satisfy the eligibility criteria inasmuch as they lacked the requisite teaching experience, which was one of the minimum qualifications. The matter was argued before a single Judge of the High Court who uphold this contention and the view of the learned Judge was affirmed in the appeal before the Division Bench. In other words, three Judges of the High Court came to the conclusion that the selectees did not have the requisite teaching experience. Two appeals came to be preferred to the Supreme Court. Reversing the two decisions of the High Court, the Supreme Court observed that:

> "when the selection is made by the Commission, aided and advised by expert having technical experience and high academic qualifications in the specialist field, probing, teaching/research experience in technical subjects, the court should be slow to interfere with the opinion expressed by the experts unless there are allegations of *mala fides* against them. It would normally be prudent and safe for the courts to leave the decision on academic matters to experts who are more familiar with the problems they face than the courts generally can be. Undoubtedly, even such a body, if it were to contravene rules and regulations binding upon it in making the selection and recommending the selectees for appointment, the court in exercise of extraordinary jurisdiction to enforce Rule of Law, may interfere in a writ petition under article 226 of the Constitution. Even then, the court, while enforcing the Rule of Law, should give due weight to the opinions expressed by the experts and also show due regard to their recommendations on which the State Government acted. If these recommendations made by the body of experts, keeping in view the relevant rules and regulations, manifest due consideration of all the relevant factors, the court should be very slow to interfere with such recommendations."[1]

However, the courts, especially the High Courts and the Supreme Court of India, are flooded with disputes involving technical considerations and the courts entertain and occasionally interfere which disturbs the administration of the Universities. It may be pointed out here that universities are expected to be autonomous bodies set up under State statutes and are required to provide for planning of education, organisation of the body, staff requirements, direction and development of education and keeping in touch with the hitherto un-explored areas of performance, vigilance and co-ordination with other universities. It also must have its own management structure, forum for resolving problems arising out of affiliation of privately managed colleges, management of university departments, its relations with the students and its relations with the State Government, especially in the matter of financial autononomy. Universities cannot be modelled for their internal management as well as to meet the expanding horizons of knowledge on profit-oriented corporate approach. The rapidly developing political and economic situation and trends in other countries have indicated that the university has also an obligation to the larger community in addition to its functions of teaching the young and conducting research.[1] If such is the role of universities, the disputes arising in the field of activities of the university cannot be adequately dealt with by purely legalistic approach generally visible in court rooms. Yet, in the absence of a specialist forum, the disputes involving universities land in the courts.

---

[1] *Dr. M.C. Gupta* Vs. *Dr. Arun Kumar Gupta* (1979) 2 SCC 339.

Admissions

As pointed out herein-before, since there is a great rush for admission to professional colleges, especially engineering and medicine, the universities, in order to forestall any charge of nepotism or subjective preferences, proceed to introduce a written Entrance Test and would regulate admissions according to the merit disclosed by the test. The written entry test extends equal opportunity to every one taking the test to establish his/her merit. This test was challenged on the ground that a test prescribing proficiency in technical subjects cannot be ordered by the Government. At best, it can be done by the Academic Council of the University. The Court held that the Government which run the colleges had the right to make a selection out of a large number of candidates and for this purpose, the Government can prescribe a test of its own, which was not against law.[2] Some of the universities prescribe written test as well as viva-voce test. The viva-voce test was challenged on the ground that the questions and answers being oral and the view about personality being highly subjective, it must be rejected as arbitrary and untenable. The court undoubtedly negatived the argument.[3] However, in the same case, the court observed that once the order prescribing criteria for admission laid down the objective criteria and entrusted the matter of selection to the qualified persons, the court cannot obviously have any say in the matter.[4] However, at a later stage, the controversy developed about the total marks assigned for viva voce test in relation to written test. In some cases, it was found that those who performed well in the written test went down in the merit list on account of their inadequate performance in viva voce test. Once this ugly feature developed, the courts again interposed by observing that:

> 'when there is deterioration in moral values and corruption and nepotism are very much on the increase, allocation of a high percentage of marks for the oral interview as compared to the marks allocated for the written test cannot be accepted by the court as free from the vice of arbitrariness.'[5]

Reservations

The largest number of cases that flooded the courts year after year commencing from 1951 till now centres round the policy of reservation of seats for members of socially and educationally backward classes of citizens, Scheduled Castes and the Scheduled Tribes. It would again not be worthwhile to refer to all the decisions save a few. In order to establish clear cleavage of opinion on a policy decision between Executive and Judiciary, one may refer at once to the earliest decision in which the Supreme Court struck down the classification in the Communal G.O. of Madras founded on the basis of religion and caste on the ground that it is opposed to the Constitution and constitutes a clear violation of the Fundamental Rights guaranteed to the citizen. The court while rejecting the submission on behalf of the State that the reservation was prescribed to give effect to Directive Principles of State Policy as envisaged in Part IV of the Constitution, ruled that the Directive Principles of State Policy have to conform to, and run as subsidiary to, the chapter on Fundamental Rights.[6] As the State in the discharge of its Constitutional obligations increased the percentage of reservation, the courts got into deeper mire of these Policy decisions. Even though article 15(4) uses the expression, 'socially and educationally backward classes of citizens', caste was taken as a label indicative of such backwardness. The courts interposed saying that caste cannot be the sole or dominant test to determine social backwardness of groups or classes of citizens, while conceding that the classes of citizens who are deplorably poor automatically become socially backward. The criterion for determining social and educational backwardness was confined to caste-tag. Then the court further proceeded to decide what ought to be the fair percentage of reservation[1], and observed that any reservation above 50% would not be fair or constitutionally valid. As the dispute repeatedly raised its head in courts, it became necessary to draw a distinction between caste and class and a set of objective principles for ascertaining social and educational backwardness. This approach of the court was reflected in a later case in which the majority decision upheld the validity of the orders made by the Government of Mysore in respect of admissions to engineering and medical colleges and observed that a classification of backward classes based on economic conditions and occupations is not bad and does not offend article 15(4) of the Constitution.

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[1] Dr. A.H. Hommadi, University Administration in Developing Countries.

[2] *State of Andhra Pradesh* Vs. *Narendra Nath*, AIR 1971 SC 2560, and the view therein expressed was re-affirmed in *Ajay Hasia* vs. *Khalid Mujib*, AIR 1981, SC 487.

[3] *R. Chitralekha* Vs. *the State of Mysore*, AIR 1964 SC 1823.

[4] *Ibid*, page 1831.

[5] *Ajay Hasia* Vs. *Khalid Mujib*, AIR 1981 SC 487.

[6] *State of Madras* Vs. *Champakam Dorairajan* (1951) SCR 525.

The caste was considered to be a relevant consideration but cannot be the sole or determining factor.[2] The pendulum swung the other way round when the court fell back on caste as a tag for determining social and educational backwardness. It said that there was no gainsaying the fact that there are numerous castes in this country which are socially and educationally backward. To ignore their existence is to ignore the realities of life.[3] If social and educational backwardness is determined by the membership of a caste, obviously, it will have to be presumed that every member of the caste is socially and educationally backward. The assumption is not well founded.[4] In view of the vacillations of the courts, both with regard to the caste test and means test, one State made an order that cultivators of land the size of whose holding was below the prescribed minimum must be treated as socially and educationally backward and eligible for reserved seat. The court struck it down.[5] Similarly, reservation in favour of rural areas was held to be impermissible on the ground that poverty in rural areas cannot be the basis of classification to support reservation for rural areas.[6] Reservations in favour of Scheduled Castes and the Scheduled Tribes have, more or less, been upheld on the ground that the political democracy was merely a means to an end to set up a social democracy by which it was meant the social fabric resting upon the principle of 'one man, one value' which would require total abolition of social and economic inequality.[7] To conclude on this point, as late as 1985, a Constitution Bench of the Supreme Court delivered five different opinions which have not helped in improving the situation.[8]

Every State has its own local problems and has to provide for their satisfactory solution. Every State takes policy decisions and ultimately, the policy decision is interfered with by the courts. The State of Jammu & Kashmir, in order to rectify the regional imbalance in the allocation of seats for admission to the medical college, made reservation of 80% seats without identifying the areas suffering from imbalances. The court declared the reservation unconstitutional under article 14.[9] Similarly, the State of Tamil Nadu, failing in its attempt to give preference on the basis of residence in the State, adopted a novel method of creating units for admission to the medical colleges in the State. The units comprised various undergrduate colleges. The intending applicants were asked not to apply for any of the units but were advised to apply to that unit which was near to their place of residence, as far as possible. The unit-wise preference was challenged as being violative of articles 14 and 15 on the ground that the State's action was discriminatory in character. The challenge met with the approval of the court and the order was struck down.[10] Occasionally, some reserved seats for Scheduled Castes and Scheduled Tribes were claimed by converts to Hinduism which claim was rejected by the court on the ground that a convert must be accepted by the other members of the said caste and admitted within their fold.[11] It is not intended to cover all cases but the specimens herein referred to would show the divergence in the views even in the matter of policy decisions between the Executive and the Judiciary and it is notorious that the judiciary takes time to render its decisions and the whole policy gets nullified after years leaving a number of victims who suffer on account of this uninformed judicial intervention.

In all cases of judicial intervention, assuming that it is right and justified, relief could never be given to those who came to the court in search of relief and to whom the court lent its helping hand. In Kerala, some years back, a common entrance test was held for admissions to the medical colleges and on the results be-

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1. *M.R. Balaji* Vs. *State of Mysore* (1963) Supplement 1 SCR 439.
2. *R. Chitralekha* Vs. *State of Mysore*, AIR 1964 SC 1823.
3. *A. Periakaruppan* Vs. *State of Tamil Nadu*, AIR 1971 SC 2303.
4. *State of Andhra Pradesh* Vs. *U.S.V. Balram*, AIR 1972 SC 1375.
5. *Janaki Prasad Perimoo* Vs. *State of J&K*, AIR 1973 SC 930.
6. *State of U.P.* Vs. *Pradeep Tandon*, AIR 1975 SC 563.
7. *Akhil Bharatiya Soshit Karmachari Sangh* Vs. *Union of India*, AIR 1981 SC 298.
8. *K.C. Vasant Kumar* Vs. *State of Karnataka*, AIR 1985 SC 1495.
9. *Nishimaghu* Vs. *State of J & K*, AIR 1980 SC. 1973.
10. *A. Periakaruppan* Vs. *State of Tamil Nadu*, AIR 1971 SC 2303.
11. Principal, *Guntur Medical College* Vs. *Mohan Rao*, AIR 1976 SC 1904.

ing declared, numerous writ petitions came to be filed in the High Court of Kerala alleging nepotism and rampant malpractices. The High Court of Kerala was convinced but could not give the relief to the petitioners except saying that it would give certain directions for avoiding malpractices in future. The matter came up to the Supreme Court and the entire test, its results and admissions based thereon were set aside. Now those who were admitted and whose admissions were found to be invalid lost the year and those who would have been entitled to admission but did not get them could not be given benefit of one year. This is a national loss without corresponding national gain.

Disciplinary Measures

Even in the matter of disciplinary measures, the situation is far from satisfactory. Numerous cases have come to the court questioning the decision of the University Authorities imposing punishment. Two of them may be referred to. An examiner appointed by one University in Gujarat allegedly so manipulated the marks that the gold medal in the subject could be awarded and was in fact awarded to his own student. An inquiry revealed the misconduct and after giving the concerned professor an opportunity to explain his conduct, the University Authorities imposed punishment of withdrawal of his recognition as a University teacher for a period of a few years. This decision was questioned by the professor in the High Court. The High Court desired the University Authorities to re-consider the quantum of punishment. The Executive Committee of the University, after considering the weighty observations of the High Court, reiterated its earlier conclusion. The High Court, in exercise of its extra ordinary jurisdiction under article 226, interfered with the punishment leaving open an unanswered question whether the High Court in exercise of its extraordinary jurisdiction can tinker with the quantum of punishment imposed by a body like the University.

The Aligarh Muslim University expelled about 13 students for a period varying from five years to the rest of the academic session, after a detailed enquiry and notice. The charge was that the students on whom punishment was imposed and several others mobbed the lodge of the Vice Chancellor, manhandled him and threatened him with his life. Some of the students from amongst the expelled students approached the High Court of Allahabad, a division bench of which, after detailed analysis and examination of the points raised in the petition, dismissed the same. The petitioners before the High Court then approached the Supreme Court under article 136. The court did not decide the appeal on merits but imposed a working solution which left both sides partly dissatisfied.[1]

Occasionally, right to claim registration for postgraduate degree examination in the specialist branch of the postgraduate medical colleges is brought to the court. Experience shows that the court would admit the matter and grant interim relief. The grant of interim relief would be more or less in terms of permitting the petitioner to attend classes. Now, it is well known that in the specialist branch for postgraduate degree, the seats are very limited and they are directly linked to the available facilities. One more student participating in the courses imposes an additional burden on limited resources. In this fashion, such an outsider taking classes under the orders of the court would finish all the semesters. He is permitted to appear at the examination under the orders of the court. The feeling is that those who can afford to fight court cases can enjoy underserved benefit of occupying a seat to which one is not entitled.

There are numerous other heads under which disputes involving universities are brought to the court. They drag on for years. In fact, one Vice-Chancellor narrated an interesting anecdote. He said that he has taken disciplinary action against a professor and the matter is pending in the court with a stay order and it is likely to be continued till the term of office of the Vice Chancellor expired. Thereafter, some injudicious compromise may be worked out. Is this a satisfactory situation?

University administration is a dynamic subject because of its philosophical and methodical implications. It is philosophical because it is a way of thinking about extremely complex systems such as management sciences and education.[2] A sound, efficient and well-planned university administration programme is very necessary for a stable and meaningful higher education growth and development in the developing countries. Moreover, a systematic university administration programme will not only contribute to the best development of the higher educational system, but will also help the development of education as a whole with a strong filial generic relationship between higher education and general education. University administration must cater to the supervision of performance programme of the professors, development of faculties of the students, prescribed admission standards, a continuous reform of curriculum so as to keep it up-to-date, updating the library and arranging workshops and seminars. This requires specialist knowledge. Disputes involving universities have, therefore, to be handled not by a purely legalistic approach but keeping in view the obligations of the universities to the society and to the nation. Therefore, both from the point of view of specialist approach in the matter of resolving disputes involving universities and decentralisation of administration of justice with a view to reducing the pressure on High Courts and the Supreme Court, it is time to devise a forum with all-India jurisdiction in which all disputes involving universities and its affiliated colleges may be brought for their resolution.

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[1] *Sarvesh Narain Misra* Vs. *Vice-Chancellor*, *A.M.U.* AIR 1982 SC 843.

[2] A.H. Mommadi, University Administration in Developing Countries, page 25.

The jurisdiction of such a centralised tribunal must be all enveloping. It must include disputes, controversies and causes involving universities, their financial autonomy, appointment of Vice-Chancellors, their administrative functions, their inter-relation with the State Governments, their inter-relation with affiliated colleges, admissions, disciplinary proceedings, *et al.*

The composition of such a tribunal can be tentatively considered. One-third members may come from the cadre of Vice-Chancellors and former Vice-Chancellors, and the rest comprising of a few legal academics, judges who have functioned in the High Courts, a few professors and retired officers who have worked in the Ministry of Education. It can sit in benches at various places. The jurisdiction of all courts including the High Courts to deal with disputes falling exclusively within the jurisdiction on such a tribunal must be ousted. Only an appeal to the Supreme Court of India under article 136 can be preferred against any of the decisions of the tribunal.

The issues which would arise for consideration in this behalf may be briefly set out:

(a) Should there be a central educational tribunal to deal with causes, controversies and disputes involving concerned Government, universities, professors in the universities and affiliated colleges and students, with comprehensive jurisdiction to deal with disputes involving the aforesaid parties?

(b) Would such a tribunal provide an all-India perspective to educational problems which today it sadly lacks in view of the fact that education has more or less remained a State subject even after the amendment of Entry 25 in the Concurrent List?

(c) What ought to be the composition of such a tribunal? Should it include educationists, Vice-Chancellors, present and former, Government servants who have dealt with problems of education, lawyers and judges who have worked at the High Court level and even social activists?

(d) Would it be conducive to improving administration of universities if the jurisdiction of the High Courts to deal with such disputes is abolished?

(e) Would decentralisation of administration of justice brought about by establishing such a tribunal achieve the desired result of expeditious disposal of such disputes so as not to render university administration stagnant?

(f) Would such a tribunal help in reducing the area of conflict between the State Government and the university in the matter of appointment of Vice-Chancellors, affiliation of colleges, internal autonomy and financial autonomy?

(g) Would such a tribunal help in introducing undisturbed atmosphere in universities for pursuit of excellence?

(h) Keeping in view the fact that all sorts of corrupt influences have reduced the credibility of examination system, would such a tribunal help in restoring credibility?

(i) Would the tribunal help in resolving disputes about admission to professional colleges which is a recurring phenomenon?

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CALENDAR OF EVENTS

Insertions for our column, Calendar of Events, are welcome. It will help early reporting of the event as also avoid unnecessary correspondence if the matter for insertion is submitted in our usual format under the heads: proposed dates of the event, title, objective, name of the organising department and name of the Organising Secretary/Officer to be contacted.

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
April 7-17, 1987	Introductory Course in Phonetics and Spoken English	To acquaint college and university teachers of English with the problems of English speech and pronunciation.	Central Institute of English and Foreign Languages, Regional Centre, Lucknow.	Prof. V.D. Singh, Course Director & Officer-in-charge, Central Institute of English and Foreign Languages, Regional Centre, Moti Mahal Campus, 2 Rana Pratap Marg, Lucknow-226 001.
May 9-10, 1987	**National Seminar on Physical Fitness and Sports Standards in Universities**	**To identify various problems impinging upon sports performance and to deliberate on issues having significant bearing on mass awakening and motivation for promoting sports and physical education.**	**Association of Indian Universities (AIU) in collaboration with Mohanlal Sukhadia University, Udaipur.**	**Shri G.S. Sivia, Dy. Secretary (Sports), Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi - 110002.**
May 10-30, 1987	All India Summer Institute in English for High School level teachers	To provide a forum to discuss and share the experiences of High School level teachers teaching English and suggest ways and means of improving the methods of teaching English.	G. Venkataswamy Naidu College, Kovilpatti, Tamilnadu	Prof. T.N. Kripendra Babu Principal, G. Venkataswamy Naidu College, Kovilpatti-627702, Tamilnadu
May 19-21, 1987	XVIII Indian Sociological Conference	Theme: Sociology and Social Transformation in India.	Department of Sociology, North-Eastern Hill University, Shillong.	Prof. M.N. Karna, Oganising Secretary, XVIII Indian Sociological Conference, Deptt. of Sociology, NEHU, Shillong-793014.
September 6-19, 1987	**International Seminar on University Administration**	**To consider the impact upon administration of changes in both the external and internal environment of universities and the development of appropriate styles, structures and management in administration**	**The British Council, London (to be held at the University of Salford, Salford, England)**	**Mr. Stuart R. Bosworth, Registrar, University of Salford, Salford, England M5 4WT.**
November 16-20, 1987	Seventh National Symposium on Radiation Physics	To provide a forum for a collective discussion and identification of the emerging new directions in the field of Radiation Physics	Department of Physics, Mangalore University, in collaboration with the Indian Society for Radiation Physics	Dr. N. Lingappa, Convener, Programme Committee, NSRP-7 and Head, Department of Physics, Mangalore University, Mangalore.
November 26-28, 1987	**International Seminar on Instrumental Methods of Electro-Analytical Techniques.**	**To provide a forum to research workers and practitioners for exchange of information and technical perceptions in instrumental methods of electro-analysis.**	**Indian Institute of Science, Bangalore.**	**Prof. M.H. Dhananjaya, Principal and Chairman of the Organising Committee, S.J. College of Engg., Mysore.**

Convocation

Agricultural Futurology

Hon'ble Mr. G.S. Dhillon, Union Minister of Agriculture, delivered the Convocation Address at the 26th Convocation of the Indian Agricultural Research Institute, New Delhi. Mr. Dhillon opined that occasions like convocation should, in addition to taking pride in past achievements, be utilized for reflecting on future strategies for growth. In his address, he commended a number of thrust areas for immediate attention of agricultural scientists. Excerpts :

This Institute of National importance is the backbone of our agricultural research system. Occasions like this when a large number of young scientists are receiving their Masters and Ph.D. degrees should, in addition to taking pride in our past achievements, be utilized for reflecting on what we need to do in the future.

One area that immediately attracts attention concerns the need of increasing indigenous capability of producing more edible oils. Leaving the argument of whether the massive imports of edible oils during the last Plan period have really gone into the channels of human nutrition aside, the fact remains that improvement in edible oil production is imperative. It is for this reason that achieving self-reliance in edible oils have been identified as one of the technological missions. It is well known that the per capita consumption of oils has gone down and the increase in oilseed production per unit area has been very small compared with the increase in cereal crops. Urgent attention, therefore, is required to overcome this shortcoming by whatever needs to be done. The experimental yield potential and realized production figures on farmers' fields of new varieties of mustard such as Pusa Barani and Pusa Bold developed at this Institute have reassured scientists and farmers alike that it is indeed possible to overcome this impasse. At whole village level operations, yields of the order of 25 quintals per hectare have been obtained and it should certainly be possible to multiply this effort.

An equally important national concern, from the point of view of balanced human diet, is the production of pulses. Given the food habit of the section of Indian vegetarian population and the established fact that the consumption of animal protein is far more expensive in energy requirements than the vegetable proteins, the emphasis on improving pulse production becomes obvious. Production procedures need to be standardised by which the area lost from pulse production is regained and the farmer is assured of stable and remunerative yields of pulses from both dryland and irrigated areas.

The third area which deserves our attention is the rainfed agriculture since sizable areas, in spite of our massive plans of expansion of irrigation potential, will still have to depend upon natural precipitation. Improvement in the production potential of dryland agriculture can no longer be ignored. This will require an integrated approach which combines genetic improvement in crop varieties, procedures of water harvesting and moisture conservation, and developing suitable agricultural implements that are specifically needed for dryland agriculture.

This brings us to the question of expansion of irrigation facilities. We have accorded high priority to irrigation projects and our efforts in this regard since independence have been recognised as a landmark in the history of agricultural development anywhere in the world. The rationale for this priority was the realisation that land and water resources of our country are limited and for meeting the increased demand for food and fibre the only alternative was to increase the efficiency of utilisation of these resources. It was also recognized that soil fertility management is an essential component of efficient irrigated agriculture. Components of fertility management procedures include selection of suitable crops and the introduction of proper crop rotations. It is important to grow green manure crops and to incorporate suitable leguminous crops in the crop rotation.

The basic objective in the development of an irrigation system is to increase agricultural production on a sustained basis. Irrigation systems can be planned to meet the water requirement of crops under a specified cropping pattern. Alternatively, cropping patterns can be modified to suit the availability of water in a project and its distribution in space and time. We will have to see why, in spite of large investments made in the irrigation sector and the phenomenal growth of irrigation potential since 1951, the return from the investment, both in terms of crop yields and economic benefits has not been commensurate. Irrigated land, should yield at least 3 to 5 tonnes of grains per hectare per year. However, at present the average yield is hardly 1.7 tonnes. Why is this so? We must analyse issues such as this and find solution to the problem.

The fourth area needing attention is the maintenance of soil health and protection of the soils from factors leading to erosion. It would be suicidal to ignore long term productivity of the soil for short-term gains. The environmental and ecological considerations are no less important. The application of chemical fertilizers and the various plant protection agro-chemicals will have to be so regulated that increased production is not achieved at the cost of environmental pollution and other hazards to human health. For combating threats from pests and pathogens, integrated pest and pathogen management will clearly be the alternative choice and due consideration will have to be accorded to researches essential to the realization of these objectives.

I am convinced that the practice of efficient agricultural production will have to assimilate some of the concepts of industrial management. I refer to the entire exercise that involves assessment of the requirements, production alternatives, feasibility studies of cost effectiveness and finally the aspects of personnel management and marketing. Should our agricultural system and the pattern of cropping continue to follow age old tradition? Should we not adopt the procedure of production of speciality crops in selected areas, ideally suited for such crops, instead of every farmer and every area growing all kinds of crops? Similarly, adequate attention needs to be paid to developing crops and production systems designed for exports. There are several crops, including some of the medicinal plants, for which our agro-ecological environment and man power availability are particularly suited to production at costs competitive and remunerative in the international market.

Shri G. S. Dhillon (second from left), Union Minister of Agriculture, delivering the convocation address at the Indian Agricultural Research Institute, New Delhi. Others seated on the dias (from L to R) are Dr A.M. Michael, Director, Dr. N.S. Randhawa, Director-General, ICAR and Dr N.N. Goswami, Jt. Director of the Institute.

The urgent requirement of stepping up agricultural production has become household knowledge. For the immediate future needs, the stipulation is that we must achieve a 5 per cent growth rate for foodgrain production or 190 million tonnes during the Seventh Plan period. The increase in agricultural productivity has so far been achieved by evolving crop varieties capable of making more efficient use of energy applied in the form of fertilizers, protection agro-chemicals, water, etc. Consequently, the gains have been sizable only under situations where energy investment has been high. For the future, strategies will have to be developed that reduce the dependence on agricultural inputs of industrial origin by replacing at least a part of them by products of biological origin. It is in this latter context that genetic engineering and biotechnological approach assume special relevance.

Many genes have been prepared in the form of purified DNA and methods have been developed to transfer them to distantly related species of plants. Gene transfers, in fact, have been achieved in unrelated organisms such as bacteria and animal cells. Reports such as the one where a bean gene has been properly expressed in tobacco, have started appearing even in popular press. It clearly indicates that the gene technology can be used for achieving practical results in crop improvement. This technology is as vital to agricultural and animal productivity increases as the computer technology has been to systematization of information and management practices.

Specific areas in agriculture where I see relevance of genetic engineering and biotechnological approach to yield results are: the ability of plants to tolerate stresses of disease, temperature, salt and moisture; improved nutritional status of the foodgrains; the replacement of applied chemical nutrients by biologically fixed ones and increased capacity of the plant to harvest solar energy by photosynthesis. I am happy to note that the IARI has taken the initiative of establishing a Biotechnology Centre which will address itself to these tasks. □

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REGISTRAR

Education for All

A new programme to educate all in the Asia-Pacific region was launched by UNESCO Director-General Dr. Amadou-Mahtar M'Bow at New Delhi on February 23.

The programme entitled "Asia-Pacific Programme of Education for All" (APPEAL) aims at spreading education in the Asia-Pacific region where nearly three-quarters of the world's 857 million illiterate adults reside. Though all the countries of the region recognise the importance of education as an essential element of developmental strategy, the targets of total eradication of illiteracy and provision of universal primary education have not yet been attained. The 23rd Session of the General Conference of Unesco held in 1985 had authorised its Director-General to launch a programme for universal provision and renewal of primary education and eradication of illiteracy in the region.

The Regional Experts' Meeting on the Regional Programme for Universalisation and Renewal of Primary Education and the Eradication of illiteracy in Asia and the Pacific held in Bangkok in May 1986 prepared this programme. The objectives of APPEAL are to promote and strengthen mutual cooperation among the Member States in the region to fulfil their resolve mainly to continue and intensify their efforts to eradicate illiteracy by the year 2000 and to consider literacy programmes as an integral part of the socio-economic development plans. The programme provides for the linking of universal primary education to literacy programmes and creating appropriate infra-structures for effective planning, management, research and development for attaining the goals of eradication of illiteracy and universal primary education.

Planning and Monitoring Board

As per the UGC guidelines, a planning and monitoring board has been constituted at the Anna University with 18 members under the Chairmanship of the Vice-Chancellor. The board will function as the principal planning body of the University and also be responsible for monitoring the development schemes of the University.

Anna Varsity to Raise Intake for Engg. Courses

All India Council for Technical Education has allowed Anna University to increase the intake for the B.E. Computer Science and B. Tech. Electronics Engineering courses.

The university proposes to effect the increase in a phased manner from the year 1986-87. Intake in the B.E. Computer Science (8 Semester) of College of Engineering will be raised from 30 to 45 this year and to 60 from next year onwards. It will be raised for B. Tech. Electronics Engineering (6 Semester) of Madras Institute of Technology from 40 to 50 this year. In case of B. Tech. Instrument Technology (6 Semester) of Madras Institute of Technology also the intake will be raised from 40 to 50 this year.

Cultural Exchange Programme by Kashmir Varsity

Kashmir University Cultural Club visited, under Cultural Exchange Programme, Universities of Madras, Aligarh, Banaras and the Jawaharlal Nehru University, New Delhi. The aim of the visit of the University Contingent under the leadership of Dr. Mehraj-u-Din, Dean of Students Welfare, Kashmir University was to create an awareness among the youth of the need for National Integration. During a month's tour the group presented cultural programmes depicting different aspects of the culture of Kashmir. In Tamilnadu, they presented programmes in various colleges of Madras University situated in far-flung areas of the State. Cultural envoys from Kashmir University received a warm welcome at all the universities they visited under the Cultural Exchange Programme.

TOGETHER
TOWARDS
PEACE

Folk Dance of Kashmir.

M. Phil Programmes at Mangalore Varsity

The Mangalore University has introduced M. Phil Programme in the subjects of Bio-Sciences, Marine Geology, Mathematics, Economics, English, History, Kannada, Political Science and Commerce from the academic session 1986-87. The university plans to involve research institutions outside the university departments and these programmes are being conducted in collaboration with C.P.C.R.I., Kasaragod, C.F.T.R.I., Mysore, K.M.C. Mangalore and Geological Survey of India (M.G. Wing), Mangalore.

Punjabi Cultural Festival

The Punjabi University, Patiala, finished top in the Gidha and folk song (team events) at the All-India Inter-University Punjabi Cultural Festival organised by the Punjabi Academy, Delhi recently. It also secured the second position in Bhangra (team event). In the individual events the university participants were adjudged best in folk song, Gidha dance, drum beating and dholak in Gidha dance.

News from Agril. Varsities

Ecology and Agricultural Management

Inaugurating a three-day National Conference on Ecology and Agricultural Management in India, the Vice-Chancellor of Aligarh Muslim University, Mr. Syed Hashim Ali said that Planning in India is done without due consideration to irrigation. This lacuna is responsible for a number of ecological problems faced by Indian agriculture.

He said that the equity in water allocation should be considered the prime duty of water management and urged the establishment of a multi-disciplinary organisation comprising irrigation engineers, agricultural scientists and ground water specialists to deal with formulation and implementation of the policy on irrigated agriculture based on equity.

In his key-note address, Emeritus Professor Mohammed Shafi, Vice-President of the International Geographers Union, warned against manipulation of seeds and use of chemicals to multiply crop yield and said that agricultural management should be such that it avoids ecological imbalances.

He said that the sewage water was used for irrigation purposes and the field crops receive nitrogen, phosphorous and potash. The vegetable crops should not be raised with sewage water as it was likely to hamper the health of the people.

Referring to a recent report of World Social Prospects Association of United Nations, Prof. Shafi said that every minute twenty four persons including eighteen children die of famine in the world and added that the dimension of food crises cannot only be measured by number of famine victims. He however warned that blind pursuit of agricultural development can lead to disaster.

In India, faulty irrigational techniques leading to water logging were causing serious problems. He also highlighted that faulty agricultural practices were leading to serious environmental problems and added that every year agricultural land was being converted into ravine land in U.P., M.P., Rajasthan and Gujarat. He said this was due to faulty cutting of trees and bushes.

A large number of delegates from all over the country including Professor Moonis Raza, Vice-Chancellor, University of Delhi and Prof. R.P. Mishra, Vice-Chancellor, Allahabad University attended the three day conference which was organised by the A.M.U. Geography Department.

Seminar on Oil Seed Plants

The Department of Botany, Sri Venkateswara University, conducted a one-day national seminar on physiology and biochemistry of oilseed plants at Tirupati recently. Sponsored by University Grants Commission (UGC) the seminar was oriented towards increased basic scientific information in plant biochemistry and physiology. It also highlighted the strategies for the regulation of biosynthesis of fats leading to enhanced yields of commercial oils.

Prof. V.S. Ramadas, who inaugurated the seminar, stressed the need for detailed analysis of the factors responsible for osmoregulatory adjustments at cellular level and thereby superior performance of oil crops under less favourable environments. He said that environmental stresses induced by lack of water, high salt, excessive light and high temperatures in the tropics were some of the most prominent constraints in crop production. He hoped that the seminar would identify specific sites in the biosynthesis of fats and oils which could be manipulated chemically, genetically or through simpler physiological principles leading to enhanced oil seed production besides resulting in an enrichment of basic science of the physiology and biochemistry of the oil seed plants.

Prof. G.N. Reddy, Vice-Chancellor, S.V. University, presided.

National Citrus Seminar

The Assam Agriculture Minister Sri Nilmoni Das inaugurated a three-day National Citrus Seminar at the Assam Agricultural University, Jorhat recently. Speaking on the occasion, Sri Das said that there was ample scope for development of horticulture and citrus plants. He laid stress on scientific cultivation of oranges. He hoped that the seminar would offer various important methods and suggestions for development of citrus fruits cultivation in Assam.

Dr. S.R. Barooah, former Vice-Chancellor, Assam Agricultural University in his address stressed the need for increased production of citrus fruits in Assam. He said that there was a proposal for opening an independent directorate for horticulture in Assam.

BAU Develops New Variety of Pulse

The Birsa Agriculture University (BAU) scientists are reported to have developed arhar pulse based cropping system for the plains of Bihar plateau. The BR-65 is the most widely adopted variety of arhar which was found suitable for this region for inter-cropping with upland paddy, maize, groundnut, soyabean and urud. The BR-65 had lately become very popular among the farmers of operational research project for dryland agriculture.

The BAU had made available eight acres of land for pulses cultivation recently to produce 'breeder seed' or BR-65. Breeder's seed production of BR-65 arhar was taken up for the first time in Bihar on such a large scale. The improved seed increased from the nucleus seed under the guidance of competent plant breeder. It is genetically and phenotypically cent per cent pure and is used for the production of foundation seed.

The BR-65 is a medium maturing variety sporting yellow flowers with green and black spots and dull brown red seeds. It is a spreading variety, maturing in about two hundred days. It has an yield potential of fifteen quintals per hectare.

Fodder Production and Conservation

Inaugurating a two-day workshop on 'Kharif Fodder Production and Conservation', Dr. Sukhdev Singh, Vice-Chancellor of the Punjab Agricultural University, said that the production of milk should be enhanced considerably to meet the growing needs of the people. He observed that the cost of production of milk could be reduced only by feeding cheap, but nutritious feed and fodder to the dairy animals and added that groundnut cake had been found very nutritive feed for these animals. He said that the farmers should adopt the practice of making silage of the surplus green fodder to use the same when the fodder was scarce. The Vice-Chancellor exhorted the participants to discuss the field problems in detail with the University experts to update their knowledge.

Dr. K.S. Nandpuri, Director of Research, whose address was read in his absance, highlighted the research activities of the PAU in respect of fodder crops. He said that an area of 0.72 million hectares is annually grown under kharif and rabi fodders in Punjab which is approximately 10 per cent of the total cropped area in the State.

The average yield of fodders produced in the State is 43 tonnes/ha. With the introduction of multicut fodder during summer season and with the use of improved varieties of agronomic practices, 80 tonnes fodder could be produced per hectare. From the present area, there is a possibility of production of 58 million tonnes of green fodder per year with the use of improved technology. He said that the PAU has evolved a new fodder variety PGG-19 of Guinea Grass at the farmers' fields in the Punjab. It produced 256 q. dry matter/ha and excelled PGG-1 by a margin of 14.5 per cent. Due to its bold seed size, it has better germination and seedling vigour than PGG-1. A new dual purpose variety of Cowpea, CL-88 yielded 253 q. green fodder/ha as compared to 213.1 q./ha by Cowpea-74 and 170.1 q./ha by FOS-1. It, thus, excelled Cowpea-74 by a margin of 19.1 per cent. A new Sudax hybrid LX-250, a hybrid between Sorghum x Sudangrass has yielded 1319.5 q. green fodder/ha in six trials conducted during the last four years. Thus, it excelled Pioneer Chari X-988, a standard variety, by a margin of 28.6 per cent in green fodder. In addition to high production LX-250 has been observed to be resistant to red-leaf-spot diseases as its both the parents are resistant.

Dr. Khem Singh Gill, Director of Extension Education of the PAU informed the participants that the PAU was conducting specific research on fodder trees for the Kandi areas of the State where the shortage of fodders was a big problem.

Dr. S.S. Gill, Special Director of Research (Veterinary and Animal Science) of the PAU also addressed more than 200 Animal Husbandry Officers from all over the State who attended the workshop.

News from UGC

Nominations for Indo-Foreign Cultural Exchange Programme 1987-88

The University Grants Commission (UGC) has asked the universities to nominate teachers of universities and their affiliated colleges for visits abroad for study-cum-lectures, exchange of views, establishing contacts and training under the various bilateral Cultural Exchange Programmes.

The to and fro travel expenses of the teacher so nominated would be met by the U.G.C. and his maintenance in the foreign country concerned by the host Government. Such a teacher would also be paid full salary and allowances by the University/College concerned for the duration of his visit abroad and be treated as on duty.

The countries in which such placements are available include USSR, Bulgaria, Czechoslovakia, GDR, Cuba, Iran, Egypt, Greece, Yugoslavia, DPR Korea, Syria, Mauritious, Iraq, Poland, Baharain, Netherland, Spain, Republic of Korea and Yeman.

Interested teachers may contact their own universities for the details of the subjects/areas and the duration of the placements and apply to them with their biodata and work plan. The last date for the receipt of nominations by the U.G.C. is **April 30, 1987**.

Visiting Associateships for Teachers

The University Grants Commission, (UGC) has increased the amount of allowances and enhanced the age limit for the "Visiting Associateships". The main objective of this scheme is to enable outstanding young teachers in universities and colleges to visit and work in other universities/institutions for research in their field of interest for shor periods.

Communication

Sir,

Let me thank you for having published Dr. A.S. Paintal's lecture delivered in the Lal Bahadur Shastri Memorial series on the theme, "Are Traditional Values in Scientific Research Still Relevant?" (University News 2 March, 1987) Drawn from his long experience, Dr. Paintal has counselled caution in the rejection of the traditional style and values in the field of research. As you have said it is a very timely advice. However, I fail to understand why Dr. Paintal considers the selection of university teachers on the basis of a common qualifying test counter-productive. Nevertheless, he thinks that the situation is different in colleges where no research is expected, and a qualifying test might help to remove mediocrity and corruption therein. With due deference I beg to differ as in the universities also, the selection of teachers suffers from the taint of corruption, pressurisation, politicisation and *bhai bhatijawad* which tends to vitiate the entire educational system by adulterating its very foundations.

The distinguished educationist Late Dr. Mohan Singh Mehta used to say that no educational institution can rise above the standard of its teachers. It is, therefore, of the utmost importance that due care is taken to evaluate the calibre and potential of the teachers of the university also at the time of selection and the test proposed in the Programme of Action document of the National Policy of Education is a step in this direction. It corresponds to the qualifying test of the IAS/IFS and is tended to screen the persons who are not likely to make good teachers. It would be a test for judging the potential, capacity for hard work, power of expression and communication and other traits required of a good teacher. The persons who qualify in this preliminary test will then be subjected to the usual selection process prescribed by the university for appointment as a lecturer.

It is well-known in the absence of such a test many an unworthy teacher has made entry into the university system with disastrous consequences. Having served as a Vice-Chancellor in two universities and Chairman of a State Public Service Commission, I am fully aware of the varying standards of assessment prevailing in the various universities and share the concern of Dr. Paintal but in my view a common qualifying test is the first and most important pre-requisite for manning the system with competent personnel. I also hold that pay and service condition of the teachers should be not less attractive than those proposed for the IAS/IFS so that top men are attracted to education. In fact there is a strong case for the constitution of the Indian Educational Service equal in status and emoluments to the IAS. The other steps would be to develop in-service training and continuous evaluation and to provide incentives for distinguished work to scholars in the three fields of teaching, research and extension.

Yours etc.

New Delhi G.B.K. Hooja

Under the revised guidelines of this scheme, which was in operation since 1971-72 under the title 'Scheme of National Associateships", selected teachers will now receive an allowance of Rs. 1200/- per month instead of Rs. 500/- where accommodation is provided by the host institution and Rs. 2000/- per month raising from Rs. 750/- where accommodation is not provided. Such awards will now be available to the teachers upto the age of 40 years as against the earlier limit of 35 years. The teachers in Engineering and Technology subjects can also use this award for visiting industrial establishments for acquiring experience in planning production and other R and D activities. These guidelines will be effective from 1st April, 1987.

News from Abroad

ACACIAS in Reclaiming Dry Land

A research conducted by Mr. Lex Thomson of the Australian Commonwealth Scientific and Industrial Research Organization's (CSIRO) division of forest research in Canberra has revealed that Australia's many species of acacias show good potential for the reclamation of marginal lands. A cording to him, the research has identified eight species suitable for fuelwood, fodder and other purposes on saline or alkaline sites.

Work on acacias — hardy, fast growing brushwoods with good drought-resistant qualities — has been motivated by an acute worldwide need to increase the scale of revegetation for fuel and fodder, as well as soil conservation and shelter in dry climates. Atleast 120 acacia species dominate in Australia's extensive tropical and sub-tropical dry zone, which has a similar climate to those areas of the world experiencing acute fuelwood shortages. An Australian acacia is the basis for a $US 27 million Food and Agriculture Organization project to supply the 500,000 tonnes of charcoal forecast to be needed annually by the African city of Kinzono, Zaire, at the turn of the century.

The CSIRO division has identified certain acacia species for special applications, including posts and pole production; fodder, shade and shelter for animals; and the preparation of food reserves during famine for long-term storage. Some species have potential for rehabilitating saline areas through protecting, mulching and shading of surface soils. But, because of their low foliar saline concentrations, salt is not recycled to the soil surface. Six species of salt-resistant acacias have been identified and described by CSIRO. Another 14 have been described as valuable for stock fodder.

Sports News

Varsities Women's Team Bags Cricket Title

Indian Universities Women's Team made a memorable debut in the Women's National Cricket Championship bagging the title with a convincing 9 wicket victory over Karnataka in the finals. In earlier matches varsities women defeated last year's holders Andhra Pradesh and also Tamilnadu.

Madhu Singh (Ranchi University) was declared as the 'Woman of the Tournament' and Minoti Desai (Indore University) adjudged the 'Best Batswoman' of the Championship.

Varsities Contingent for Zagreb Universiade

12 tennis players and 3 women athletes will be appearing in the final selection trials as representatives of Indian Universities Contingent for participation in the World University Games to be held at Zagreb, Yugoslavia, from July 8 to 19, 1987. Trials for final selection have been arranged at Netaji Subhash National Institute of Sports, South Centre, Bangalore, from April 1 to 5, 1987. Selected contingent will undergo training till the departure of the team to Zagreb.

National Seminar on Physical Fitness & Sports Standards in Universities

The Association of Indian Universities will organise, in collaboration with the Mohan Lal Sukhadia University, a National Seminar on Physical Fitness and Sports Standards in Universities on 9-10 May 1987 at Udaipur.

The climate generated by IX Asian Games in 1982 at Delhi had raised our hopes and it was expected that India was on the way to greater achievements in international sports. The subsequent developments, especially the poor performance of Indian sportsmen at the international competitions, have proved it otherwise. "What ails Indian Sports?" is being debated everywhere, and the urgency for improving standards in sports and physical fitness is realised in every quarter.

The National Policy on Education has also emphasised the need for making sports and physical education an integral part of the curriculum in schools and colleges. A nationwide infrastructure for physical education, sports and games should be built up into our educational edifice. What the country really needs is a system which can promote an integrated development of body and mind. One of our major weaknesses has been that the schools, colleges and universities have not played their roles effectively in this direction. Most of them lack resources, their infrastructure is inadequate or sub-standard and sports facilities are scarce. Indeed, sports appears to have been placed in the lowest priority in the total scheme of school and college education. The utter neglect of the physical efficiency of our youth in educational institutions and non-availability of resources for sports have been responsible for this sorry state of affairs. It is proposed to identify various problems which impinge upon the sports performance and to deliberate on issues that have significant bearing on mass awakening and motivation for promoting sports and physical education.

Themes

The deliberations at the Seminar will cover the following themes:

1. Sports Infrastructure in Rural and Urban Areas

The discussion will focus on the availability and requirement of sports facilities in different areas—urban and rural, humid and dry, plains and hills. The provision of minimum unit requirements of facilities, depending upon the popularity of various games and sports in the specific areas, will also be discussed.

2. Student Motivation and Incentives

To encourage mass participation of youth in sports activities, it is imperative to motivate them through a chain of incentives like scholarships, bursaries, freeships, and special diet allowances. The feasibility of making sports an academic discipline, preferential treatment in job opportunities and related question of raising the status of physical education would be debated.

3. Coaching and Competitions

For success in sports competitions, coaching plays a crucial role. The discussions under this theme would focus on the assessment of the present system of coaching for national and international competitions. The question of evolving a core curriculum for physical education, the standardisation of syllabi and its adoption throughout the country will be discussed. The scheduling of the domestic competitions would also be reviewed.

4. Linkages between Sports and General Education

The need for providing effective linkages between sports and general education on the one hand and sports activities in schools with the colleges/universities on the other, cannot be under-estimated. While the schools are primarily responsible for providing the basic inputs to the sports requirements of the higher level institutions, the latter are responsible for improving the efficiency and proficiency in sports in schools by way of providing highly trained instructors and coaches. Ways and means of establishing such linkages would be explored so that the goals envisaged in the New Educational Policy are realised.

5. Norms of Physical Fitness

A minimum level of physical fitness is necessary for any individual to effectively participate in any game or sports and, in the larger context, to be a good all-round student. The methods of improving general health and the question of specifying norms of physical fitness for different age groups of students and for various games will be debated. Modern concepts of sports science will also be discussed.

PROGRAMME

May 9, 1987 (Saturday)

Registration of Delegates	9.00 A.M.
Inauguration & Exhibition	10.00 A.M.
Session I	11.15 A.M.
Session II	2.30 P.M.

May 10, 1987 (Sunday)

Session III	9.00 A.M.
Session IV	11.15 A.M.
Session V	2.30 P.M.
Valedictory Function	5.15 P.M.

VENUE

The venue of the seminar will be Mohanlal Sukhadia University, Udaipur.

PARTICIPATION

Delegates from universities, colleges, organisations dealing with sports and physical education, Department of Youth Affairs and Sports, Netaji Subhash National Institute of Sports, Lakshmibai National College of Physical Education and Sports Authority of India are invited to participate in the seminar.

Name with designation and postal and telegraphic address of the sponsored delegates should reach the Convener not later than **31st March, 1987.**

EXHIBITION

An exhibition of literature on sports and physical education such as books, magazines, journals, charts, models and other materials which might present the recent advances in sports science and sports medicine will be organised on the occasion.

PAPERS

Papers, in duplicate, neatly typed on one side of the quarto bond paper in double space, not exceeding 2,500 words and accompanied by a summary in not more than 300 words, should reach the Convener latest by **31st March, 1987.** The papers should not have been published or presented at any previous seminar or conference.

The official langugage of the seminar will be English. Further details can be had from the convener.

CONVENER

Shri G.S. Sivia
Deputy Secretary (Sports)
Association of Indian Universities
AIU House, 16 Kotla Marg
New Delhi - 110 002.
Telegram : "ASINDU"
Telephones 3312305, 3313390,
3312429, 3310059.

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AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles culled from Periodicals received in AIU Library during February, 1987.

EDUCATIONAL PHILOSOPHY

Partington, Geofrey. The disorientation of Western education: When progress means regress. *Encounter* 68(1), 1987-5-15.

EDUCATIONAL PSYCHOLOGY

Fass, Richard A. By honor bound: Encouraging academic honesty. *Ednl Record* 67(4), 1986, 32-5.

Gray, Mary McPhail and others. Erikson psychosocial stage inventory: A factor analysis. *Ednl Psy Measurement* 46(4) 1986, 979-83.

Mishra, B.C. Relationship between creativity and problem-solving ability at different levels of intelligence. *Indian Ednl Rev.* 21(4), 1986, 112-8.

Schuell, Thomas J. Cognitive conceptions of learning. *Rev Ednl Res* 56(4), 1986, 411-36.

Shaffer, John W. and others. Development of alternate methods for scoring the Rorschach interaction scale. *Ednl Psy Measurement* 46(4), 1986, 837-44.

EDUCATIONAL SOCIOLOGY

Schrager, Rick H. The impact of living group social climate on student academic performance. *Res Hr Edn* 25(3), 1986, 265-76.

EDUCATIONAL PLANNING

Parker, Reese. A system for constraint removal. *New Directions Hr Edn* (55), 1986, 63-72.

EDUCATIONAL ADMINISTRATION

Birch, Anthony. D. Business in the college business office. *New Directions Hr Edn* (50), 1985, 23-32.

Davis, Ralph M. Institutional renewal: What the corporate model can't tell you. *New Directions Hr Edn.* (50), 1985, 5-12.

James, Thomas, O. Can we choose a management style? *New Directions Hr Edn* (50), 1985, 59-74.

Justiz, Manuel J and others. On the front lines: Presidents build institutional image. *Ednl Record* 67(4), 1986, 24-31.

Martin, Warren Bryan. Corporate culture: College culture. *New Directions Hr Edn* (50), 1985, 75-81.

Tapie, Rohm, C.E. and others. Implementing information management strategies. *New Directions Hr Edn* (55), 1986, 109-14.

Williams, M.J. The management of conflict. *New Directions Hr Edn* (50), 1985, 33-6.

TEACHERS & TEACHING

DISTINGUISHED TEACHERS on effective teaching. *New Directions Teaching and Learning* (28), 1986, 3-91.

Gupta, Chhaya. Correlates of teacher performance in a simulated teaching setting. *Indian Ednl Rev* 21(4), 1986, 119-24.

Ostrand, Kenneth D. Trips and tours: Combining theory and reality through educational travel. *New Directions Cont Edn* (30), 1986, 83-9.

EDUCATIONAL RESEARCH

Baird, Leonard L. What characterizes a productive research department? *Res Higher Edn* 25(3), 1986, 211-25.

Fleming, William G. The interview: A neglected issue in research on student learning. *Hr Edn* 15(5), 1986, 547-63.

EDUCATIONAL TECHNOLOGY

Cerullo, Michael J. A computer auditing course. *Computers & Edn* 10(2), 1986, 273-9.

Demaiziere, Francoise and Gandilhon, Nicole. An attempt to optimize teachers' and learners' contribution and the computer's. *Computers and Edn* 10(1), 1986, 131-5.

Edwards, Morfydd G and Weller, Bernard E. Compulab-computing for the physical sciences teaching laboratory. *Computers and Edn* 10(2), 1986, 307-13.

Hartley, J.R. and Tait, K. Learner control and educational advice in computer based learning: The study station concept. *Computers & Edn* 10(2), 1986, 259-65.

Howes, R.F. and Williams, D.O. Methodology for developing computer based teaching programs. *Computers & Edn* 10(3), 1986, 347-52.

Irving, Ann. A strategy for the eighties. *Computers & Edn* 10(1), 1986, 145-8.

McCormick, Sophie. Software and television: A new approach. *Computers and Edn* 10(1), 1986, 17-24.

Sparkes, R.A. Teaching electronics with the aid of a microcomputer. *Computers & Edn* 10(1), 1986, 119-22.

Watson, Deryn M. Generating language learning with CAL. *Computers & Edn* 10(1), 1986, 181-7.

EVALUATION

EDUCATIONAL EVALUATION : The state of the field. *Intl J Ednl Res* 11(1), 1987, 7-142.

Ehrenberg, Ronald G. and Sherman, Daniel R. Employment while in college, academic achievement and postcollege outcomes: A summary of results. *J Human Resources* 22(1), 1987, 1-23.

ECONOMICS OF EDUCATION

Coleman, Jack W. Planning and resource allocation management. *New Directions Hr Edn* (55), 1986, 53-61.

Harran, Stephen F. Capital budgeting : A small-college system. *New Directions Hr Edn* (50), 1985, 37-45.

Hoverland, Hal and others. The crisis prevention analysis model. *New Directions Hr Edn* (55), 1986, 33-41.

Moore, Douglas R. Stewardship of resources for private higher education. *New Directions Hr Edn* (55), 1986, 17-23.

Rumberger, Russell W. The impact of surplus schooling on productivity and earnings. *J Human Resources* 22(1), 1987, 24-50.

PROFESSIONAL EDUCATION

Morano, Richard A and DiFabio, Louis C. Enhancing management functions: A simulation in the classroom. *New Directions Cont Edn* (30), 1986, 37-45.

ADULT EDUCATION

Macala, Joan C. Sponsored experiential programs-learning by doing in the workplace. *New Directions Cont Edn* (30), 1986, 57-70.

Mason, Robert C. Locating continuing education programs. *New Directions Cont Edn* (31), 1986, 83-90.

COMPARATIVE EDUCATION & COUNTRY STUDIES

St. John, Edward P. Post-secondary policy and management in the Far East: A comparative study. *Hr Edu* 15 (5), 1986, 523-45.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

BIOLOGICAL SCIENCES

Anthropology

1. Badkur, Prabha. *Estimation of bone length and stature from measurements on human long bones of Madhya Pradesh, India.* Delhi.

Environmental Sciences

1. Azeez, P.A. *Studies on some aspects of toxicity and accumulation of heavy metals Eu, Ed, Ni and Cr on cyanobacteria.* JNU.
2. Dasgupta, Indranil. *Construction of a plant c-DNA library and selection of clones by immunological approach.* JNU.

Marine Sciences

1. Pradeep, R. *Studies on bacterial indicators and pathogen, Vibrio parahaemolyticus in Cochin backwater.* Cochin.

Microbiology

1. Gopalkrishnan Nair, Bipin Kumar. *Some regulatory aspects of carbohydrate metabolism in Neurospora crassa.* Baroda.
2. Sharma, Anjana. *Immunological studies on the mixed histoplasma and mycobacteria lung infection.* Bhopal.
3. Singh, Devendra Pratap. *Physiology of parasitism in some vegetable crops after nematode infestation.* Bhopal.
4. Tripathi, Krishan Kumar. *Studies on the chemotaxis in relation to pathogenicity of certain bacteria.* Panjab.

Biochemistry

1. Arora, Jaswinder. *Toxic effects of lipid peroxides on lipid metabolism in relation to atherosclerosis in experimental animals.* PAU.
2. Ghoschchaudhuri, Gautam. *Interaction of antimitotic drugs with tubulin microtubule system.* Calcutta.
3. Majumdar, Sagarika. *Nutritional quality of some natural and modified fats.* Calcutta.
4. Panda, Tapobrata. *Studies on biosynthesis of cellulase and xylanase by the mixed culture of Trichoderma reesei D1-6 and Aspergillus wentii pt 2804.* IIT Delhi.
5. Radha Krishnan, Vijayalakshmi. *Interaction of steroidal contraceptives and excess pyridoxine with carbohydrate metabolism.* Osmania.
6. Roychauhduri, Baisakhi. *Studies on biochemicl effects of Kalmegh. Andrographis paniculata extract.* Calcutta.

Botany

1. Aggarwal, Ramesh Kumar. *Studies on in vitro and in vivo response to salinity in barley, Hordeum vulgare L.* HAU.
2. Appireddy, Tallapureddy. *Studies on the vegetation and flora of upper West Godavari District, Andhra Pradesh.* Andhra.

3. Bahadur, Brijesh. *Ecological studies on the effect of water pollution on some crop plants.* Rohilkhand.

4. Burman, Uday. *Studies on the effect of cycocel on water-logged Arachis hypogaea L. and Pisum sativum L.* HAU.

5. Chakraborty, Pranjib Kumar. *Studies on bud rot of cauliflower.* Yashwant Singh.

6. Jagdish Kumar. *Studies on components contributing to potential ascospora disease of Venturia inaequalis (Cke) Wint.* Yashwant Singh.

7. Kiran Kumari. *Genetics of self-incompatibility in two crucifers: Eruca sativa and Raphanus sativus.* Panjab.

8. Kuthiala, Renu. *Cytomorphological studies in some Indian orchidaceae.* Panjab.

9. Mehta, Poonam. *Morphogenetic studies on some Indian mosses.* Delhi.

10. Om Prakash. *Studies on induced mutagenesis in Brassica campestris L. and Brassica juncea Coss and Czern.* Rohilkhand.

11. Sareen, Reeta. *Morphophysiological and biochemical studies in okra, Abelmoschus esculentus (L) Moench with reference to some bioregulants.* Rohilkhand.

12. Sharma, Niranjan Kumar. *The taxonomical and phytosociological study on the vegetation of Jhalawar and its environs.* Rajasthan.

13. Sharma, Krishna. *Studies on single cell proteins of microbes.* Ravishankar.

14. Sharma, Rajesh. *Studies in the myxomycetes of Eastern Himalayas and adjoining hills.* Panjab.

15. Shrivastava, Sudhir Kumar. *The influence of urd bean mosaic virus infection and rhizobium on the growth, yield and nodular physiology of urd bean, Vigna mungo (L) Hepper.* Avadh.

16. Srinivas Raju, Pakalapati. *Post-harvest physiological studies of some climacteric fruits with emphasis on the control of ripening and preservation.* Patel.

17. Tandon, Shobha. *Ecophysiological studies of two species of Amaranthus, viz., A. hybridus Linn and A. tricolor Linn.* Rohilkhand.

18. Tandon, Vijai Kumar. *Physiological studies on growth and development in Colocasia esculenta L.* Rohilkhand.

19. Yadav, Somesh. *Studies on the effect of some growth substances on Abelmoschus esculentus (L) Moench.* Rohilkhand.

Zoology

1. Chowhan, Jeininder Singh. *Studies on some acenthocephalan parasites of fishes from 'Govind Sagar Lake' and its* distributory canals in North India. Panjab.

2. Darlong, Vincent T. *Ecological studies of soil arthropods in forest and jhum systems of Laitkor, Meghalaya.* NEHU.

3. Kanungo, Jyotshnabala. *Biochemical changes in the serum of some amphibians during vitellogenesis.* Utkal.

4. Nazmi, T.A. *Studies on the toxic effects of pesticides (endosulfan) on the digestive tract of Clarias batrachus Linn.* Bhopal.

5. Pal, Subodhchandra. *Physiological studies on six steroid hormone action in fish and amphibia.* Calcutta.

6. Popli, Mahesh Kumar. *Radioprotective effect of MPG (mercaptepropionyl glycine) against tritium induced changes in the hematopoietic organs of F_1 generation mice.* Rajasthan.

7. Rafia Sultana. *Histology and histochemistry of Mystus gulio (Ham) (Osteichthyes: Siluriformes; Bagridae).* Andhra.

8. Rai, Rakesh. *Studies on the effects of some indigenous drugs on the reproductive system of albino-rat.* Bhopal.

9. Saha, Nirmalendu. *Ureogenesis and its regulation in a fresh water air breathing teleost, Heteropneustes fossilis.* NEHU.

10. Saraswat, Manju. *Studies on the morphohistology and biochemistry of the gonads of Hemidactylus flavivirilis (Rufcel) with reference to seasonal variation.* Rohilkhand.

11. Sawarkar, Dilip B. *Comparative anatomy, histology and histochemistry of the urinary bladder in some vertebrates.* Nagpur.

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Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

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(d) **System Operatôr :** Master's Degree in Mathematics/Applied Science/Commerce/Economics/Bachelor's degree in Engineering with at least one year's experience of Computer Operations. Knowledge of High Level Language is desirable. Experience can be relaxed for SC/ST candidates.

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(f) **Senior Scientific Officer Grade II :** Good Bachelor's degree in an appropriate field of Engineering or Master's Degree in an appropriate field of Science with 2 years experience in Research and Development.

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UNIVERSITY NEWS

VOL. XXV MARCH 30
No. 13 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor :
SUTINDER SINGH

6 APR 1987
C.F.T.R.I. MYSORE

Central Educational Tribunal

Having been entrusted with the task of suggesting judicial reforms, the Law Commission intends to undertake a study of the need to have a Central Educational Tribunal to deal with causes, controversies and disputes concerning Governments, universities, professors and students, with comprehensive jurisdiction to deal with disputes involving the aforesaid parties. The proposal of the Law Commission is not a day too late and deserves to be supported.

It will be recalled that the AIU had expressed its deep concern in the recent past when confronted with mass resignations of Vice-Chancellors in Bihar following an ordinance making their office dependent on the pleasure of the Governor-Chancellor, the resignations of the Vice-Chancellor, Chief Minister and Governor in Bombay and the public controversy generated by the award of marks by an ex-Vice-Chancellor followed by the suspension of the succeeding Vice-Chancellor. In this exercise, three principal areas of conflict were identified as creating a wider overall crisis—the relationship between the state governments and the Chancellors; the Chancellors and Vice-Chancellors; the Vice-Chancellor and university bodies and the teacher, student and karamchari associations. It was felt that there was urgent need of establishing a mediating institution which would allow these problems to be settled equitably and effectively by peer-group intervention. AIU therefore proposed the setting up of an All India University Council modelled on a mix of the Press Council, the Advocates Act, and the Medical Council of India Act.

The AIU had all along felt that it was of vital importance that the matters relating to the disputes between the Vice-Chancellors and the university personnel as well as between the Vice-Chancellors and the Chancellors should be subjected to consideration by peer groups and not by lesser minions of the judiciary or the executive so that the dignity and the prestige of the Vice-Chancellors may not be jeopardised. It was in this background that the proposal to set up an All India University Council having distinguished public citizens including eminent educationists as its members and headed by a retired justice of the Supreme Court was mooted. The proposal which has now emanated from the Law Commission is, therefore, a welcome step.

The Law Commission appreciates that a sound, efficient and well-planned university administration is very necessary for a stable and meaningful growth of higher education and progress in developing countries and that university administration must, therefore, cater to the supervision of performance of the professors, development of faculties, discipline of students, maintenance of admission standards, a continuous survey of the curricula, and updating the library system, etc. The Law Commission is of the considered opinion that the disputes involving universities cannot be handled by a purely legalistic approach and, therefore, proposes the involvement of university dons and eminent educationists in the forum for the disposal of such disputes. As such, it proposes the setting up of a Central Tribunal with an all enveloping jurisdiction. It is proposed that 1/3 members of such Tribunal may come from the cadre of Vice-Chancellors and former Vice-Chancellors and the rest from legal academics, High Courts judges, distinguished professors and retired officers of the Ministry of Education. It is also proposed that the jurisdiction of courts including High Courts to deal with disputes falling exclusively within the jurisdiction of such Tribunal must be ousted. Only an appeal to Supreme Court of India under article 136 may be preferred against any of the decisions of the Tribunal.

This should go a long way in reducing the backlog of pending cases as well as expeditious disposal of fresh disputes. *—G.B.K. Hooja*

SCIENCE EDUCATION FORUM

J.N. Kapur*

The Indian Science Congress Association decided at its 73rd Conference held at Delhi University in January 1986 to establish a Forum on Science Education. Prof. J.N. Kapur, one of the Convenors of the Forum, has sent us the following report on the activities of the Forum that started its work at the 74th Conference of the Indian Science Congress Association held in January, 1987 at Bangalore University.

The Science Education Forum started its work at the 74th Conference of the Indian Science Congress Association (ISCA) held in January 1987 at Bangalore University, by organising the following three symposia:-

(a) Recent Developments in Science Education at the school level with special reference to implementation strategy of the New Educational Policy (NEP);

(b) The content and pattern of Science Education needed to make human resources useful; and

(c) Science Olympiad in India.

A number of Scientists, Science educators and school and college teachers of Science participated in these symposia. The following resolutions and recomamendtions were approved:

1. The Forum strongly supports the basic principles of Mathematics and Science Education contained in paragraphs 8.16 to 8.19 of the NEP document and recommends that all steps be taken for inservice training of teachers on a massive scale to teach mathematics and science in the spirit of these paragraphs and that Central and State governments should provide enough funds for this work and for preparation of instructional materials for both students and teachers satisfying the requirements of these paragraphs:

Mathematics Teaching

8.16 Mathematics should be visualised as the vehicle to train a child to think, reason, analyse and to articulate logically. Apart from being a specific subject, it should be treated as a concomitant to any subject involving analysis and reasoning.

8.17 With the recent introduction of computers in schools, educational computing and the emergence of learning through the understanding of cause-effect relationships and the interplay of variables, the teaching of mathematics will be suitably redesigned to bring it in line with modern technological devices.

Science Education

8.18 Science education will be strengthened so as to develop in the child well-defined abilities and values such as the spirit of inquiry, creativity, objectivity, the courage to question, and an aesthetic sensibility.

8.19 Science education programmes will be designed to enable the learner to acquire problem-solving and decision making skills and to discover the relationship of science with health, agriculture, industry and other aspects of daily life. Every effort will be made to extend science education to the vast numbers who have remained outside the pale of formal education.

2. The Forum recommends emphasis on Processes of Science and on Creation of a Scientific Temper. For this it recommends the organisation of Science and Mathematics exhibitions, fairs, competitions, olympiads, museums, parks, community centres, education centres and teachers' centres in every district. It also recom-

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**Department of Mathematics, Indian Institute of Technology, New Delhi.*

mends provision of more time on TV and Radio for popularisation of Science and Mathematics. Contributions of teachers and others in creating a right scientific temper should be adequately recognised.

3. Course units on the Nature of Mathematical Thinking, the Nature of Scientific Attitudes to Life, the History and Philosophy of Science and the Scientific Biographies of Eminent Scientists should be developed.

4. The students of science should be told in appropriate manner and at appropriate levels about our resources, socio-economic needs, ongoing developmental activities and Goals of the Nation in Science and Technology to motivate them for careers in first-rate science and technology.

5. In every state, an apex autonomous body on Science Education should be created to manage and co-ordinate all Science Education activities in the state. It should encourage interdisciplinary activities and activities of all non-government organisations in Science Education.

6. Since Mathematics and Science Education have become separate disciplines, departments of these disciplines should be started to undertake training and research in these disciplines at the highest levels.

7. Suitable curricula for teacher training should be developed for inservice training of Science teachers at various levels. These should aim at giving these teachers a deeper insight into the content and pedagogy of science syllabus they are teaching and should help them in becoming more efficient and motivated teachers.

8. All efforts should be made to give good science education to all students. Limited resources should not be just spent in giving excellent education to only some students while neglecting science education of a majority of students. The first priority should be to provide a certain acceptable level of facilities for science education in all schools and colleges.

9. The Science and Mathematics Teachers Associations and other non-government voluntary organisations engaged in propagation of quality in Science Education should be generously supported.

10. Only properly qualified science teachers should be allowed to teach science subjects. In those institutions where unqualified or underqualified teachers are teaching Science, all efforts should be made to either train these teachers to become fully qualified or to replace them by qualified teachers.

11. All science teachers should have facilities for attending refresher courses at regular intervals. Every science teacher should be given duty leave and travelling allowances to attend at least one state-level or national level conference once in three years.

12. Laboratory work should not be stereotyped, but it must be of exploratory nature and demonstrations should form an integral part of science teaching.

13. Audio-visual aids should be used on a bigger scale than at present.

14. Students may be given projects which may be completed by consulting reference books in the library or by performing experiments.

15. All school and college libraries should be equipped with good books in all science subjects. In addition every city should have a central science library containing good books and journals in science subjects and this library should be accessible to all students, teachers and the general public.

16. Programmes for promoting science may be undertaken in the following phased manner:

    (a) Workshops for preparing a large number of resource persons in all science subjects at all levels;

    (b) Orientation workshops for teachers in schools and colleges on regional and state levels, on an optional basis, and drafting of academic programmes for refresher courses for teachers; and

    (c) Refresher courses for teachers in various institutions on a more or less compulsory manner at least once in every five years for every teacher.

17. The on-going efforts to develop the learning

teaching materials for science teaching at different levels should be in consonance with the new policy of developing human resources. These efforts should be expedited and materials should be made available for learning and teaching.

18. A National Centre for Research in Science Education may be started immediately and it may cooperate with similar centres abroad to undertake research and disseminate information on science education developments.

19. The Forum welcomes the initiative of the National Board for Higher Mathematics in conducting an Indian National Mathematical Olympiad in cooperation with professional organisations of Mathematics teachers in different states in the country. It hopes that it will extend its activities so that hundreds of thousands of students in both rural and urban areas will have the olympiad experience.

20. The Forum also requests all science teachers, science educators and science education administrators to organise mathematics, physics, chemistry and biology olympiads at junior secondary, senior secondary, undergraduate, postgraduate and even adult levels and to cooperate with all individuals and organisations conducting these olympiads.

21. The Forum recommends that all talented students identified through olympiads should be given special training in special camps by top scientists of the country.

22. The Ministry of Human Resource Development should send teams to participate in international olympiads in all subjects from the year 1988 onwards and to provide intensive training to all those selected to represent India.

23. The Ministry of Human Resource Development may also constitute an apex body to coordinate all olympiad activities in the country. □

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Distributed by :
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Revamping the Examination System

Subhash C. Agarwal*

Our's is the 3rd largest system of education in the world. Every system suffers from some defects or limitations. Education, as a system, is also suffering from various types of defects. Within education as a system, there are verious sub-systems. Examination system is one of them and it is this sub-system which needs more attention than any other sub-system.

It will not be true to say that only present examination system suffers from various limitations or defects. If we go through the pages of History, we find that in our ancient period of education too, examination system was not free and fair for all. We could find examples of favouritism, nepotism and the like. We could also find examples in which candidates with lower merit were given preference over candidates with higher merit.

Why

Now the question that arises is why revamping of present day examination system is necessary? Perhaps its answer is that present day examination system has failed miserably to achieve its goals; it has failed to deliver the goods, it has failed to realise the expectations of each strata of society, it is not reliable, not valid, not trustworthy. A number of committees and commissions have deliberated on the examination system at various levels. The Education Commission (1966) observed, "The crippling effect of external examinations on the quality of work in higher education is so great that examination reform has become crucial to all progress, and has to go hand in hand with the improvements in teaching." One of the duties of the UGC prescribed in its Act is to take, "all such steps as it may think fit for the promotion and co-ordination of university education and for the determination and maintenance of standards of teaching, examination and research in universities." It is matter of satisfaction that the U.G.C. is aware of its duty in the area of examination reform and is trying its best to overcome the problems of examinations through Examination Reform Units. But examination reforms are still at the stage of infancy and there is a need to revamp the examination system.

There can be two approaches for revamping the examination system at higher level. The first is to change the basic structure of present day examination system and evolve an entirely new pattern. This approach may be considered idealistic in itself, but at the same time it does not seem practical at all. The other approach is to plan improvements in the framework itself and this is a pragmatic approach which should be followed.

Present Position

Accepting second approach means we are accepting the fact that the defects of the present day examination system have to be removed or eliminated. Let us see what are the defects, our present examination system is suffering from. The primary defects as reported by Patel (1976) are:

1. With reference to objectives :
    - (a) Important objectives such as understanding, application and skill etc., are ignored.
    - (b) Only content rather than the objectives and learning experiences is kept in mind while testing.
    - (c) The examination is considered as an end and not as a means.
    - (d) Passing the examination is the only objective for students.
    - (e) Weightage is given to the memorisation ability of the students.
2. With reference to Questions :
    - (f) Mostly essay type, non-comprehensive and ambiguous questions are set. Students interpret them differently. This leads to subjectivity in answering and assessing.
    - (g) Certain typical questions are repeated.
    - (h) Inappropriate item formats are used.
3. With reference to structure of examination:
    - (i) Overall options are provided. This leads to freedom to prepare only selected topics.
    - (j) Only written type examination is conducted.
    - (k) Terminal and annual examinations continue to enjoy undue weightage.

Department of Education, University of Allahabad, Allahabad.

4. Other Defects:

(l) Examination dictates the teacher what to teach and how to teach a subject. In other words what is important in the examination is given undue importance in classroom teaching.
(m) For slow writers, present day examinations are a sort of speed tests rather than power tests.
(n) Only the quantitative judgement is taken care of.
(o) Teachers are unable to identify the strength and weakness of their own teaching.

There are many other defects that can be pointed out here. These defects have resulted in:

(1) a tremendous wastage of human resources;
(2) the policy that a teacher is good if and only if he brings good results;
(3) the fact that an institution becomes only an information centre where the subject is at the centre rather than the child;
(4) the failure of higher achievers in real life situations; and
(5) the encouragement of students to join tuition classes, coaching classes or read guides.

Studies have been done in the area of examination depicting various defects in it. How much unreliable, invalid and subjective is our present examination system and what is the present state of examinations can be seen from the findings of the studies done by Harper and Mishra (1975).

In a study "Ninety experienced examiners marked the same 10 history answer books", it was found :

(i) that one of the answer books was considered the best of the ten by one examiner, and the worst of the ten by another;
(ii) that the only answer book that was considered worthy of a *Distinction* by one examiner was *Failed* by seven. Eight gave it *First Class.* Marks ranged from 22% to 76%. So, whether a candidate *fails* or gets a *distinction* may often be as much due to 'luck' (i.e. which examiner marks his or her answer book) than to merit.

In another study 'Forty experienced examiners marked four thousand History, Hindi, Biology and Mathematics (Geometry) answer books a second time, the same researchers found that :

(i) Division of more than half (about 52%) examinees was changed (raised or lowered) by two divisions e.g. Firsts receiving a Third and Failure getting Second or vice-versa.
(ii) Objective type examinations were found giving an agreement above 90% for two separate examinations of the same subject and 100% for two examiners of the same answer books (as compared to about 60% in essay type examinations).
(iii) Out of 229 *First Divisioners*, 85 were awarded a *Second* or *Third* by another examiner.
(iv) 27% of all candidates failed by one examiner were passed by another examiner.
(v) Different scales seem to be used for different subjects. Just as one degree Farenheit is not equal to one degree Centigrade, so one mark in Mathematics is not equal to one mark in Hindi. So, marks in different subjects should not be added together, unless they are changed or converted into same scale.
(vi) Allowing a choice of questions lowers the reliability of an examination. Paper setters apparently cannot judge the difficulty of most questions accurately.

How

Accepting the need for revamping the examination system in higher education, New Education Policy (1986, p. 24) says, "The objective will be to recast the examination system so as to ensure a method of assessment that is valid and reliable measure of student development and a powerful instrument for improving teaching and learning." Now the question arises how we can achieve this objective? The answer lies in revamping the present examination system so that the defects of examinations can be overcome. If we go through the present examination system carefully and we analyse the results of the studies in the area of examinations, we are likely to highlight the following:

1. Each examinee should be asked to attempt the same questions, which have been attempted by all other candidates. This can be achieved by not providing any choice in question papers.

2. The questions should be objective based rather than content based and they should also measure higher teaching objectives. This will help not only in realizing the highest teaching-learning objectives but also help in demotivating the students to memorize the content without understanding it. This will also help eschew the tendency to prepare a selective portion rather preparing fully.

3. Objective type, rather than essay type, questions should be asked. This will not only make scoring of answerbooks objective but also help test-constructor cover wide range of teaching-learning objectives. Objective questions are, however, not substitute of essay

type questions, rather they are complementary to each other. Hence, short answer questions should be favoured because they possess merits of both essay type and objective type questions.

4. Terminal evaluation should be replaced by continuous evaluation, which is possible only through internal evaluation. In other words continuous internal evaluation should be followed. It is because teaching and learning are continuous activities, so should be the evaluation. This will result in:

(a) activating the students to acquire important skills and abilities which are not included in the external examination e.g. ability to handle instruments, communication skills, interest, appreciation creativity, etc.
(b) assessing student's initiative, study habits, and quickness of judgement which are important aspects of learning, requiring their assessment. We do not measure these qualities in present examination system;
(c) providing feedback to students to ascertain their progress and knowing their strong and weak points; and
(d) estimating the teaching effectiveness of the teachers.

5. Criterion referenced tests, rather than norm referenced tests should be emphasised in evaluation. This will lead to inter-group comparison of students rather than intra-group comparison, which is present day need of the society.

6. Open book examination should be given preference over traditional examination. It will not only help in removing/eliminating various malpractices like copying, cheating etc. in examination, but also help in reducing the burden of over-memorising on the part of students.

7. Grades should be awarded in place of marks. Five point, seven point or nine point grading system may be adopted. This will lead to much accurate and objective assessment of students' ability. In traditional marking system the range of marks is from 0 to 100. Barring exceptional cases, students neither get '0' mark, nor '100' marks. Normally marks range from 20 to 80, so range of marks is reduced to 60 in practice. So marking system has lost all its significance. Moreover, marks are not true estimates of student's ability. According to UGC (1973), ". . . . Statistical analysis has shown that when an examiner assigns a mark to a script, there is a 50% chance that his error is greater than 5%. If, then, we consider our three students whose marks are 60, 59 and 55, what do we really know about them? We are not sure of a mark of 60; at best we can be confident only that the marks should be between 55 and 65 and that range might include the true marks of all three students, since the one who has awarded 55 might have a true mark as high as 60."

8. Scaling should be adopted. In simple words it means that marks in various subjects of a student should not be added as such. Rather, they should be converted on some standard scale and then added. It is because 1 mark in Mathematics is neither equal to 1 mark in Hindi nor 1 mark in Social Studies. In this situation it is not fair to add them to determine the composite score of a student. If Grading System has been followed, the overall Grade or Grade point average may be calculated and it would be:

$$\frac{g_1c_1+g_2c_2+g_3c_3+\dots\dots\dots\dots}{c_1+c_2+c_3}$$

where g_1, g_2, g_3 etc., are grades in each subject and c_1, c_2, c_3 etc., are credits for each subject.

Many other measures can be added to the above list as to how to improve our examinations. It is not important to increase the list of measures. What is important is that to what extent we are ready to accept these suggestions and how far we are able to implement them. About two dozen Examination Reform Units are working in various universities and institutions of higher learning, but these units have failed even to achieve the objectives of minimum examination reforms in their respective jurisdiction. Maybe it is due to lack of coordination or proper organisation or, maybe we cannot implement all the reforms on our own, without making necessary changes in University Acts, Statutes etc. But atleast we should do what we can. Pressures should be mounted on Government and Universities to change the Acts, Statutes etc., so that we can honestly try to revamp our examination system. □

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CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
April 7-17, 1987	Introductory Course in Phonetics and Spoken English	To acquaint college and university teachers of English with the problems of English speech and pronunciation.	Central Institute of English and Foreign Languages, Regional Centre, Lucknow.	Prof. V.D. Singh, Course Director & Officer-in-charge, Central Institute of English and Foreign Languages, Regional Centre, Moti Mahal Campus, 2 Rana Pratap Marg, Lucknow-226 001.
May 9-10, 1987	**National Seminar on Physical Fitness and Sports Standards in Universities**	**To identify various problems impinging upon sports performance and to deliberate on issues having significant bearing on mass awakening and motivation for promoting sports and physical education.**	**Association of Indian Universities (AIU) in collaboration with Mohanlal Sukhadia University, Udaipur.**	**Shri G.S. Sivia, Dy. Secretary (Sports), Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi - 110002.**
May 10-30, 1987	All India Summer Institute in English for High School level teachers	To provide a forum to discuss and share the experiences of High School level teachers teaching English and suggest ways and means of improving the methods of teaching English.	G. Venkataswamy Naidu College, Kovilpatti, Tamilnadu	Prof. T.N. Kripendra Babu, Principal, G. Venkataswamy Naidu College, Kovilpatti-627702, Tamilnadu
May 19-21, 1987	XVIII Indian Sociological Conference	Theme: Sociology and Social Transformation in India.	Department of Sociology, North-Eastern Hill University, Shillong.	Prof. M.N. Karna, Oganising Secretary, XVIII Indian Sociological Conference, Deptt. of Sociology, NEHU, Shillong-793014.
June 1-30, 1987	Summer School in Plasma Physics	To give broad exposure of plasma physics to the students of M.Sc. in Physics and fresh research scholars	Department of Physics, Ravishankar University, Raipur (M.P.)	Dr. S. Guha, Convener, Dept. of Physics, Ravishankar University, Raipur (M.P.)
September 6-19, 1987	**International Seminar on University Administration**	**To consider the impact upon administration of changes in both the external and internal environment of universities and the development of appropriate styles, structures and management in administration**	**The British Council, London (to be held at the University of Salford, Salford, England)**	**Mr. Stuart R. Bosworth, Registrar, University of Salford, Salford, England M5 4WT.**
November 16-20, 1987	Seventh National Symposium on Radiation Physics	To provide a forum for a collective discussion and identification of the emerging new directions in the field of Radiation Physics	Department of Physics, Mangalore University, in collaboration with the Indian Society for Radiation Physics	Dr. N. Lingappa, Convener, Programme Committee, NSRP-7 and Head, Department of Physics, Mangalore University, Mangalore.
November 26-28, 1987	**International Seminar on Instrumental Methods of Electro-Analytical Techniques.**	**To provide a forum to research workers and practitioners for exchange of information and technical perceptions in instrumental methods of electro-analysis.**	**Indian Institute of Science, Bangalore.**	**Prof. M.H. Dhananjaya, Principal and Chairman of the Organising Committee, S.J. College of Engg., Mysore.**

Craving for Peace

Dr. Mulk Raj Anand, the noted writer and humanist, delivered the Convocation Address at the annual convocation of the University of Burdwan. In a scintillating address, Dr. Anand graphically portrays the craving of the human spirit for peace and universal brotherhood. The address is being reproduced as an expression of our sympathy with the theme.

I was moved when your Vice-Chancellor wrote to me to come as a Chief Guest at this Convocation of the Burdwan University, because my credentials for attending an Academic function are not good.

Although I was honoured, some years ago, by being asked to be the first Tagore Professor of Art and Literature in our country and I did a three year stint in my *alma-mater* Panjab University in that capacity, I am not an academic by choice and temperament.

Convocation

As Tagore Professor I tried to initiate the students, not only in the literature and visual arts faculty, but in other faculties as well, through casual experiences of those areas of creative expression, which are not generally in the syllabus of a University.

For instance, I taught History of Art, not from books, but by taking my students to the sites where Le Corbusier, and his team of architects, were building Chandigarh. I showed the students the bricks baked in the nearby bhatti and used in the buildings: then I showed them a cast of the bricks used in building Mohenjodaro houses five thousand years ago in the Indus Valley Civilisation. Similarly, I showed them clay images of the time of Ashoka Maurya and the terracotta figures of Durga from Bengal.

I had read to them current myths about how the world began of the adivasis of Gujarat.

I tried to release the students, who were interested in Theatre, by producing a farce entitled *Mattavilasa*, written by Raja Mahendravarman of the Pallava Dynasty of 6th century A.D.—about a quarrel between a Hindu Tantric ascetic and a Buddhist Monk: and then I made them produce a nautanki about a contemporary Hindu-Muslim riot. I invited a classical dancer to the University, at the same time as I asked the male students to do Bhangra themselves and the female students to do the Gidda dance.

In my class, taken under a big tree, which I called Santiniketan, I ended the segregation of boys and girls, by mixing them up. I protested against the warden of the women's hostel who did not allow girls students to stay out at rehearsals after 6 p.m. and won for them the right to be escorted home by the young men in spite of the objections of the puritan Dean of the Faculty.

I organised exhibitions of vessels used in the kitchens of village home in Punjab, alongside the phulkaris worn by women during festivals as well as bullock's colourful winter clothing, the potter's wheel, the locksmith's tools and jewellery for bride.

And then I brought a troupe of singers to sing Qwalis.

Later I got students to join in the planting of rose bushes in the seventeen acre rose garden, initiated by the horticulturist Dr. M.S. Randhawa, one of the authors of Green Revolution in North India.

So you can imagine what an odd kind of Professor I was!

When academics in the University talked about my unusual behaviour, I told them that I was *Tagore Professor* and was following the footsteps of the methods of liberation of the students from the University as a machine for producing graduates, to the Visva-Bharati kind of Institution, which might release the new young to their creative energies. I wanted, like Gurudev Tagore, the students to think of the University as part of the University of life, where there is no exact syllabus, but where a pupil may learn to live as a member of a group. One among others. Be it in the family, the village, the town, the city, the country, or in the whole world. For me there can be no one who is not in some Kelationship with others.

Of course, everyone has to survive, earn one's bread, with butter if possible, or even without. This means learning to do something, that the University often cannot teach completely. For instance, one can learn Engineering and take a B.Sc. or M.Sc. degree, but one can only become an engineer if one practises engineering and helps to make a dam, to irrigate land for good harvests. Quite often this means learning to do more than is in the text books. Like Leonardo da Vinci, who made a machine to fly by first writing notes on aeronautics. It is because not many of our brilliant M.Scs or B.Scs in engineering have gone beyond the text books and college labs, that our rivers are always in flood during the rainy season, or we have droughts in one part of the country or another every summer. One amateur Engineer, I know, who had graduated in the University of life has, however, suggested, after a survey of the rivers, the hills, the flat lands of our country, how to make a garland of canals by linking the rivers, thus to solve the problems of floods and droughts, and make India a granary of the world.

As you may have heard, in the Soviet Union the rivers have been linked by canals, virgin soil upturned for thousands of miles, and the hungry people of Soviet Central Asian states have solved the problems of scarcity of food, in their sharing economy.

I am not saying this, because our country has failed to take big initiatives since we became free. Our first Prime Minister launched seven big dams, started five great projects for making steel plants and initiated five year plans on the Russian model. And thus we have achieved the green revolution in one part of our land and provided the basis for the creation of a fairly viable economy of producer's goods to fulfil consumer's demands. Our production is still not sufficient for our needs. But we have already done more reconstruction in 35 years than our erstwhile Imperial masters did in India in 200 years.

Only we must remember that Jawaharlal Nehru and his colleagues, who had struggled for freedom for three generations, had learnt from the University of life more than they had learnt from the British-Indian Babu producing machine-shops and they tried to be whole men and kept learning till the end of their lives.

Since the passing of that generation, India has other problems to be solved if we are to emerge into a new contemporary civilisation.

First of all, our newly won freedom itself has to be sustained.

Many among the intelligentsia of our country who get the gains of freedom without working for it, have become ensnared of the affluent society by increasing their wants as in the west. They do not seem to understand that the affluence of some countries in the world has been built up, by buying raw materials at cheep prices from the underdeveloped countries, and selling them their machinery and consumer's goods at high prices. This selfishness has led to a kind of neo-colonialism. Although the Imperialists had to leave Asia, Africa, Latin American countries, they still tend to exploit them so that they can be rich and their god-called 'high standard of living'.

Self-confessedly the ex-Imperialists believe that *their self* comes first. Most of the upper orders seem to want to get rich quick and kick everyone else in the ditch. And, therefore, in twentytwo UNCTAD Conferences, the ex-colonial economies have refused to join, with the liberated countries, to build a new world economic order, in which sharing economies may be built up.

There are those in our country, however, who wish to ape them by exalting the idea that one person can only have success by cutting the throat of the other, by making more money than others, by bein g superior to the others.

On the other hand, the leaders of our freedom sttuggle, Mahatma Gandhi, Gurudev Tagore and Jawaharlal Nehru, put forward the ideas of a pooled economy. They believed that, while building the country, we should give jobs to everyone, provide education to the young and health to the whole community of our newly freed peoples. They felt that we should produce just enough worldly goods and not increase demand to imitate the colonialists by becoming 'Brown Sahabs'. They wanted us to save from our gains enough to spend on our children's physical well-being, also for the cultivation of their personalities—what is called *Sanskriti* in our old tradition. They did not want us to be totally concerned with material goods, but wanted us to look inwards and achieve some degree of poise, in a leisure society, where the body soul can be renewed, through cultivation of knowledge, by expression in dance and music, by love of nature and preservation of environment from pollution, so that we remâin nature's children, living in some degree of balance, in the family of man.

Unfortunately, in spite of the French Revolution of 1799 which preached the idea of Liberty, Equality and Fraternity, and despite the Russian Revolution of 1917, and our own non-violent upturning of British rule, in the hope of establishing a socialist pattern of society, the former Imperialists have not given up the old idea of 'everything for onself and devil take the hind most'. They envied each other's possessions of colonies and brought about the first world war of 1914-1918. Those among them, who had no empires, waged the Second World War for occupying Lebensaraum, or space, in colonies like their rivals, the British, the French and others.

All of them had to give up their empires, however, after loosing millions of dead.

We thought that would begin to value freedom for all men to protect the weak, to defend the children, to give equal rights to women. But we see that they have not given up the economies of selfishness.

In fact, in their contempt for the Soviet Union, where a sharing economy has been practised for over three generations, the ex-colonists began to rebuild their profit based economies.

The greed for unlimited wordly goods, fear of the have-nots who may achieve well being, has poisoned some of the rulers among the new colonialists to pile up weapons of mass destruction to fight and destroy the sharing economy of Communist Russia and the people's democracies.

The Soviet state has also had to build up enough arms.

The money that should go for the welfare of the so called weaker sections of the world is going to build atom bombs, hydrogen bombs, missiles, super missiles and now experiments to make a star war they say, to end all wars.

Indeed, if a Third World war breaks out say our enlightened scientists that the earth will be abolished forever. No living being will survive and a new ice age may begin.

Let my quote to you the words of Professor Sean Macbride, Nobel Laureate, about the present situation of the world:

> 'In 1984 humanity wasted over 800 million dollars on the arms race.
>
> In 1985 U.S.A. is inviting the world to engage in an arms race in space (for Star Wars), which will cost over a trillion dollars to the U.S.A. alone.
>
> And this is when famine claims hundreds or thousands of lives in Africa.
>
> Over 400 million people suffer from malnutrition.
>
> Over more than 300 millions suffer from anaemia.
>
> One hundred million children are on the verge of death from undernourishment and lack of vitamins.
>
> Experts say 60% of the total annual military spending would suffice to build 6,00,000 hospitals for 18 million patients. 50 million well equipped blocks of flats for 300 million urbanites: 20,000 industrial enterprises which would provide jobs for 20 million peoples'.

After we attained freedom, our country evolved the five principles of co-existence among people and states of the world, in the modest effort to being thinking, concretely, of solving the problem of rivalries of states for occupying other peoples space and waging wars. Jawaharlal Nehru asked for a hundred years of peace. So that our people may build up a civilisation in which there will be no hunger, less need and some concern for other human beings and awareness of the world as one. In spite of the failings of men and women, we believe that the humanity must survive. And that mankind may break away from the old ideas of some people as superior to others, of the whites being better than the blacks, the brown and the yellow peoples. Our small state notions were to give place to our awareness of the globe as one world.

This can only happen if our education system can be changed to show that human beings are similar beneath skin. And that every religion asks people to be good and not bad.

There are only differences of ritual that does not divide peoples.

But the poet Iqbal said 'Religion does not teach hatred'.

And the division of castes, made four thousand years ago, how can it last in our age of equality? How can the seventy two sects of Islam go on fighting a karbala war in every generation? How can the few rich hold the many poor at ransom?

I believe that there are many people in the world whom I have met in my travels, who feel that the new young cannot be offered as sacrifice in a final third world war, as their predecessors were in the first two world wars.

I believe the choice before us all: is to abolish progressively poverty, ignorance and disease and the instruments of nuclear war which threaten human existence.

We must see to it then that the ceremony of innocence is not drowned by nuclear death.

In this task the innocents must become aware of the dangers before them and cherish the hope of survival beyond despair.

The German poet Rilke once said:

> "Is it possible that mankind has had thousand of years in which to observe, reflect, record, and allowed these millenia to slip by like recess intervals at school, in which one eats a sandwich and an apple?
>
> "Yes, it is possible. . . .
>
> "If all. . . .is possible—if it has even no more than a resemblance of possibility—then surely. . . . . something must be done?"
>
> "The first comer. . . . . must begin to do some neglected things?"
>
> "You are all first comers. . . . ." □

Superspeciality Institute for Manipal

A superspeciality institute is proposed to be set-up soon in Manipal. Loma Linda University of California, U.S.A. with which Kasturba Medical College (KMC), Manipal, has faculty exchange arrangements will provide consultancy services for the Institute. Partial funding for the project will be sought from international aid organisations.

Dr. Lyn Behrens, Dean of the Loma Linda University, School of Medicine and Dr. Ramdas M. Pai, Medical Director of KMC, said recently that joint efforts by the two institutions will be directed to community outreach work and research. They added that they have identified certain areas in which the two institutions can carry out joint programmes.

Manipal and Loma Linda had entered into sister city relationship on May 6, 1982 under the aegis of Sister Cities International, an organisation set-up by President Eisenhower for promoting world peace and co-operation.

Co-operation between Loma Linda University and Kasturba Medical College and the College of Dental Surgery, Manipal, has grown and there has been a regular exchange of faculty members for the past two years. KMC faculty have gone to Loma Linda for advanced training and Loma Linda University faculty have come to Manipal for continuing medical and dental educational programmes.

Principle of Relationships

The 14th Annual Convocation of the Guru Nanak Dev University was held on March 3, 1987. Prof. Yash Pal, Chairman, University Grants Commission, addressed the Convocation while Mr. S.S. Ray, Governor of Punjab and Chancellor of the University presided. In his address Prof. Yash Pal exhorted the youth to change their outlook and attitude towards the fast changing conditions in society, the country and the world. He said it was imperative to develop a code of ethics and behaviour, to broaden their vision and view the present day situation in a new perspective. Individuals were not an entity in themselves, but were involved in a social interaction and relationships, he added.

Quoting from Rabindranath Tagore's book "Religon of Man", Prof. Yash Pal said that "reality is not based on the substance of things but the principle of relationships. Relationships are the most important". He said that all great religious heads and scientists had arrived at solutions after studying problems in a new perspective.

Under the changing conditions brought about by the fast development in technology, Prof. Yash Pal pointed out that the new generation had plenty of opportunity to improve the lot of society.

Over 747 degrees and medals including Ph.D., M.Phil., M.D., M.S., LL.M., M.B.B.S., B.D.S., were presented at the convocation.

INFORMEX-87

The Madras University Students Advisory Bureau, in collaboration with the Directorate of Employment and Training, Govt. of Tamil Nadu, organised INFORMEX-87—a programme on courses and career guidance for the benefit of college students. The week-long programme from March 2-11, 1987 highlighted several self-employment schemes. Competitions at the Inter-Collegiate level were held in (1) Oratorical Contest in English, (2) Oratorical Contest in Tamil, (3) Quiz, (4) Mono-acting and Mime, and (5) Carnatic Music. To mark the occasion, a five-day part-time programme on "Communication and Action" was also organised. A blood-grouping camp was also conducted with the help of the Bio-Chemistry Department of the University.

About 50 education and training institutions and major sectors of employment based at Madras participated in the Informex with information on the courses and training programmes offered by them.

Futurology Studies

The Department of Education of the Devi Ahilya Vishwavidyalaya, Indore organised a series of Seminars on Futurology for creating awareness about future and for visualising different scenarios in Science, Technology, and Education. Participants from different parts of India took part in the deliberations and discussed various themes like: Need of studying the future, quantitative and qualitative methods of forecasting; Futurology and Physical Sciences; Futurology and Environmental Sciences; Futurology and Social Sciences; Futurology and Higher Education; Futurology and School Education; and Futurology and Teacher Education. It was recommended that futurology should be introduced as an integral component of educational programmes at school and higher stages. The department also organised three different Workshops for assessing the feasibility of training teachers for Piagetian Model of Teaching. Various teaching and testing tasks were designed in context of selected concepts. About 70 participants were trained to master the three teaching steps of the Piagetian Model of Teaching, viz. (a) Presentation of the Puzzling Task; (b) Inquiry; and (c) Transfer. The observation proforma known as Piagetian Teaching Analysis Guide was finalised. The possibility of introducing

Piagetian Method of Teaching in individualised and group settings was also discussed.

TNAU Honours Alumunus

The Tamil Nadu Agricultural University, Coimbatore, held its 12th convocation recently. On this occasion a Degree of Doctor of Science (Honoris Causa) was conferred on Hon'ble William Odongo Omamo, Kenyan Agriculture Minister. In the citation presented at the time of conferment of the degree, Mr. Omamo was described as devoted agricultural scientist, a dedicated statesman and an able administrator. An alumunus of the Agricultural College and Research Institute, Coimbatore, Mr. Omamo earned the academic and social recognition for his untiring service to the cause of agriculture in Kenya, dedication for the welfare of farming Community and the great values of leadership exhibited by him.

In his address, Mr. Omamo congratulated the University for its balanced academic programme—a programme that lays emphasis on integration of research, education and extension. That linkage, he said, between research education and extension had baffled his country and that is why they wanted to be benefited by Indian experience. He stressed the need for undertaking joint ventures which would facilitate better communication between the two countries, help the scientists to come closer and enable the technology to flow faster and easily.

Ranbaxy Research Awards

The Ranbaxy Research Foundation established in 1985 by the leading pharmaceutical company, Ranbaxy Laboratories Limited, has instituted two annual awards of Rs. 50,000 each for outstanding research work in the field of Medical Sciences and Pharmaceutical Sciences. The awards are open to Indian nationals, resident in India and abroad.

For the 1986 Awards, the Foundation has invited nominations from Heads of Research Institutions, Universities and Medical and Pharmacy Colleges to reach it latest by 31st May, 1987. A Panel of Judges consisting of eminent scientists from all over the country will review the dissertations to make the final selection.

Further details may be obtained from Mr. B.K. Keayla, Trustee, The Ranbaxy Research Foundation, 19, Nehru Place, New Delhi-110019.

Tamil Digital Dictionary

The Tamil University, Thanjavur, proposes to bring out a Tamil Digital Dictionary in collaboration with the Universal Digital Communication Research Institute, New Delhi. The dictionary, it is hoped, will help in evolving a common methodology for natural language processing software.

We Congratulate . . .

Dr. Kumar Vimal who has been appointed as Vice-Chancellor of the Nalanda Open University.

News from Agril. Varsities

Agricultural Officers' Workshop

Mr. L.D. Kataria, Vice-Chancellor, Haryana Agricultural University (HAU), observed that in spite of the fact that the scientists have made significant improvement in evolving high yielding and disease resistant crop varieties of cereals yet there were newly emerging areas with vast marketing and export potential which needed priority attention of scientists. He was inaugurating the three-day Agricultural Officers' Workshop recently at the university campus. The workshop was convened to discuss various field problems and finalise the Package of Practices for adoption in kharif crops. Mr. Kataria said that it was high time that the scientists concentrate on diversification of the present cropping pattern so that the growing demands for fruit, vegetables and oilseeds could be met. To overcome the problem of the rising water table, the Vice-Chancellor impressed upon the scientists and field functionaries to accept this task as a challenge and intensify their efforts so that the present cropping system remains unaffected.

The Director of Research, Dr. Mohinder Singh, disclosed that Hybrid bajra HHB-50, cotton HS-45, sorghum S-171 have been identified and are ready for release in the State. The University Research Evaluation Committee identified the rice variety HKR-120, Cotton H-999, DS-5, HSCPE-23, Sorghum S-260, Rosha-grass RH-49 and Mullethi HM-1 on the basis of their superiority in yield and disease-resistance over the existing released varieties.

Mr. Nasim Ahmed, Director of Agriculture, Haryana, referred to the increasing problems of salinity, alkalinity and wind and water erosion which are adversely affecting the yield. The Director, Extension, Dr. K.S. Chauhan expressed his satisfaction at close coordination amongst the scientists, extension workers and farmers.

Dry Land Development Technology

Dry Land Development Technology, being carried out in the four revenue divisions of the Karnataka State is a novel type of agrarian revolution expected to bring sweeping changes in the lives of the farmers engaged in dry land cultivation all over the country. The Central Government has assigned an important place to the development of rainfed and dry land areas in the New 20 Point Programme and efforts will be made to remove the obstacles in the way of popularising dry land farming both in the arable and non-arable lands.

Keeping in view the need to impart relevant knowledge and skills about extension methods in agriculture, horticulture, animal husbandry, farm forestry etc., the State Resource Centre for Karnataka has prepared a programme for integration of dry land development technology in the adult education programme. The idea is to make the programme more relevant and popular to the farmers and others in the rural areas.

Celery—A Promising New Crop

Regional Research Laboratory (RRL), Jammu initiated a programme to introduce celery (*Apium graveolens*) in Jammu area about three years back with the collection of indigenous and exotic germplasm. During this period a world collection of over 50 accessions had been built up and their performance compared. The performance of one of the accessions (designated as RRL-85-1) was very good and was found to be suitable for commercial cultivation under Jammu conditions.

RRL-85-1 has light green leaves, thick stem and small closely packed whitish flowers which are borne in compound umbels. It is medium tall (120-130 cm) which flowers in about 110 days after planting and generally matures in about 180-190 days. It yields on an average 11q of seeds/hectare. The seeds of this strain yield 1.5 to 1.8% of light yellow essential oil with a characteristic long lasting spicy odour. This strain is fairly resistant to pests and diseases. The farmer can expect better economic return with the cultivation of this strain of celery than with wheat.

The celery seed oil is used commercially for flavouring food products and liqueurs. In small amounts it is used in pharmaceutical preparations and in perfumery. Celery has good export potential too. During 1985-86 about 2625 tonnes of celery seed/powder worth about Rs. 3.1 crores were exported to various countries.

News from UGC

Swami Pranavananda Awards

The University Grants Commission has selected ten eminent educationists and scholars for Swami Pranavananda Awards in Education, Sociology (including Social Anthropology), Economics, Political Science and Environmental Science and Ecology for the years 1986 and 1987. The selections have been made in recognition of outstanding work and important contribution to human knowledge in respective fields.

The selected educationists and scholars are:

Education

(1) Professor S. Nurul Hasan, Governor of West Bengal (1986); and (2) Dr. (Mrs.) Madhuri R. Shah, Former Chairperson, U.G.C. (1987).

Sociology

(1) Dr. M.S. Gore, Former Vice Chancellor, Bombay University (1986); and (2) Prof. A.R. Desai of Bombay (1987).

Economics

(1) Dr. Amartya Sen of Oxford University (U.K.) (1986); and (2) Prof. Jagdish Bhagawati of Columbia University (U.S.A) (1987).

Political Science

(1) Prof. Iqbal Narain, Member-Secretary, ICSSR, New Delhi (1986); and (2) Prof. G. Ram Reddy, Vice-Chancellor, Indira Gandhi National Open University, New Delhi (1987).

Environmental Science & Ecology

(1) Prof. R. Mishra, Fellow of N.S.A. (1986); and (2) Prof. S.

Krishnaswamy, Vice-Chancellor, Madurai Kamraj University (1987).

The awards, which are of the value of Rs. 10,000/- each, are given away annually out of Rs. 5 lakh placed by Swami Pranavananda Saraswati, Director, Yoga Societies in America at the disposal of the University Grants Commission. These are given to Indian nationals working in the university system or associated with the university or institutions recognised for research/advanced study, for their contributions made in the above mentioned fields, either individually or as a team.

Hari Om Ashram Awards 1986

The University Grants Commission has invited nominations from Universities/Research Institutions, Organisations, Professional Societies and National Organisations for five Hari Om Ashram Awards for 1986.

The awards are (1) the Sir C.V. Raman Award for Experimental Research in Physical Sciences; (2) the Homi J. Bhabha Award for Research in Applied Sciences; (3) the Meghnad Saha Award for Research in Theoretical Sciences; (4) the Jagdish Chandra Bose Award for research in Life Sciences; and (5) Award in the field of Interaction between Science and Society.

These awards will be given to an individual or a team of scientists for outstanding scientific work, carried out in India, which has made important contribution to human knowledge in the areas covered by them during the last five to seven years period.

These awards, of the value of Rs. 10,000/- each, are paid out of the endowment created with funds received from Hari Om Ashram Trust, Nadiad (Gujarat).

Nominations should reach the University Grants Commission latest by **30th April, 1987.**

Sports News

BIG Boost to University Sports

The Department of Youth Affairs and Sports, Government of India, has decided to enhance the scale of financial assistance for development of sports infrastructure in universities and colleges. The items of sports infrastructure eligible for assistance under the NSO programme has also been enlarged. This has been made possible with the dramatic increase in the budget for sports promotion in the 7th Plan period.

Under the new dispensation, the financial assistance for development of sports infrastructure in universities and colleges through the University Grants Commission (UGC) under the scheme of Nationsl Sports Organisation (NSO), the following revised ceiling limits of assistance have been announced.

	(*Rs. in lakhs*)
Construction of a Sports Complex/Composite Stadium	60.00
Construction of Indoor/Open Stadium, Swimming Pool, Gymnasium, etc.	7.50
Improvement of existing Stadium, Swimming Pool, Gymnasium, etc.	7.50
Flood Lighting of Playfields	1.50
Development of Playfields	0.75
Purchase of Sports equipment of non-expendible nature	1.50

This assistance is subject to the cost of each project being shared in the ratio of 75 : 25 between the UGC and the University/College and also subject to the UGC assistance being limited to the ceilings indicated above. In the case of sports equipments of non-expendible nature, the grant will be on 100% basis.

It has also been decided, in consultation with UGC, that the Central Government may give suitable financial assistance directly to a university or a college from the budget of the NSO Scheme for development of sports infrastructure on merits of each case, if assistance sought does not fit into the pattern of NSO Scheme.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Psychology

1. Lokras, Anjali. *A study of stress and coping behaviour in children of Class III & IV.* HS Gour. Dr. Y.S. Bhargava.

Psychology

1. Aravindakshan, T. *Regional culture in a metropolis: The Malayalees in Delhi.* Kerala. Dr. P.K.B. Nayar.

2. Girija Devi, V. *Social values and consumer behaviour in food adulteration.* Kerala. Dr. P.K.B. Nayar and Dr. (Mrs.) L. Prema.

3. Kesherwani, Anand Kumari. *Sagar Jile ke samipasth evam doorasth gramon per nagrikaran ka prabhav.* HS Gour. Dr. R.M. Ram.

4. Nema, Rajesh Kumar. *Berhiya samudaya: Iskee samajik sanskritik sthiti ka samajshastriya adhyayan.* HS Gour. Dr. R.M. Ram.

5. Saraf, Vimala. *Changing pattern of urban hindu families with special reference to Soni's of Sagar City.* HS Gour. Dr. Ram Murti Ram.

6. Tookar, Ram Bhajan. *A sociological study of associative and dissociative action structures in two villages of Sagar.* HS Gour. Dr. R.M. Ram.

Law

1. Arputham, A. Vincent. *Constitutional protection of minorities in India.* Kerala. Dr. N.K. Jayakumar.

HUMANITIES

Language & Literature

English

1. Lalitha, G. *Forms of neurosis in the Theatre of Harold Pinter and Edward Albes.* Kerala. Dr. V. Rajakrishnan.

2. Panikkar, Chitra. *Joyce and Proust as narrators in ulysses and remembrance of Things past.* Kerala. Dr. K. Ayyappa Panicker.

Sanskrit

1. Jayakumari, R. *A comparative study of the philosophies of Sri Sankara and Sri Ramakrishna.* Kerala. Dr. K. Visweswari Amma.

2. Shah, Pushpa. *Acharya Sri Chandanmal Muni: Vyaktitva evam krititva.* Devi Ahilya. Dr. B.D. Musalgaonkar.

Hindi

1. Gupta, Deepa. *Sumitranandan Pant ke kavya mein sanskriti va jeevan darshan : Lokayatan ke sandarbh mein vishesh.* Devi Ahilya. Dr. Rajendra Mishra.

2. Krishnan, Rema S. *A study of the cultural background of lalit nibandh.* Kerala. Dr. K. Padmavathi.

3. Sindhu, S. *Boudha darsan in the prose texts of Mahadevi Verma.* Kerala. Dr. K. Padmavathi.

Marathi

1. Joshi, Supriya Rajeev. *Marathiteel Mahanagariya Kadambri,* 1960 *to* 1975. Shivaji. Dr. G.M. Pawar.

Malayalam

1. Sebastian, Babu. *Characterisation in the novels of G.V. Raman Pillai : A study*. Kerala. Dr. N. Sam.

2. Unnikrishnan Nayar, K.G. *A comparative study of Kannassa Ramayanam and Kamba Ramayanam*. Kerala. Dr. N.R. Gopinathan.

Geography

1. Dubey, Om Prakash. *Agricultural development and nutritional dimensions in Sagar Division, M.P.* HS Gour. Dr. R.P. Mishra.

2. Ishrat Jahan Khanam. *Mahu Indore ke madhya dainik yatrion kee avagaman kee visheshtayen, samsyayen evam unke nidan*. Devi Ahilya. Prof. A.A. Abbasi.

3. Majumdar, Ratan. *Spatial relations and economic development of the Andeman Islands*. HS Gour. Dr. S.K. Sharma.

4. Patel, Khemchand. *Agricultural land use and nutrition in Sagar Damoh Plateau*. HS Gour. Dr. P.D. Tiwari.

5. Pware, Pramod Kumar. *Population change, agricultural development and nutritional situation in the Tawa Basin, M.P.* HS Gour. Dr. R.P. Mishra.

6. Sahu, Devendra. *Environmental deterioration and its socio-economic implications in Madhya Pradesh*. HS Gour. Dr. R.P. Mishra.

7. Siddiqui, Shabana. *Spatial organization of agriculture in the environs of Sagar City, M.P.* HS Gour. Dr. S.K. Sharma.

8. Singh, Virendra Bahadur. *Population growth, agricultural development and nutritional dimensions in rural areas of Sagar District*. HS Gour. Dr. R.P. Mishra.

9. Thakur, Shailendra Singh. *Geomorphological investigtions around Sagar District : An environmental approach*. HS Gour. Prof. S.K. Babu.

10. Vanchal, Makrdhwaj Singh. *Utilization of mineral resources and spatial organisation in Eastern Madhya Pradesh*. HS Gour. Dr. S.K. Sharma.

11. Vohra, Ramakant. *Geography of poverty and unemployment in the Sagar District of M.P. India*. HS Gour. Prof. R.S. Dube.

History

1. Dube, Sunanda, *Bhopal Riyasat mein samajik chetna ka itihas*, 1857-1947. HS Gour. Dr. G.S. Tripathi.

2. Gupta, Lata. *Gandhijee evam Madhya Pradesh mein asprishyata andolan*, 1930-48. HS Gour. Dr. B.N. Sharma.

3. Mishra, Sanjana. *Madhyayugeen Uttar Bharat mein Bhakti andolan kee samajik prishthbhoomi*. HS Gour. Dr. B.P. Srivastava.

4. Mohinder Pal Kaur. *Guru Nanak as a social reformer*. HS Gour. Dr. M.P. Pathak.

5. Parameswaran Nair, R. *History of District administration in Travancore-Cochin with special reference to the Quilon District*. Kerala. Prof. P.G. Edwin.

6. Pathak, Pradip Kumar. *Shri Harisingh Gour: His personality and achievement*. HS Gour. Dr. B.N. Sharma.

7. Thakur, Rajesh Singh. *Bhartiya rashtriya andolan aur Makhanlal Chaturvedi*. HS Gour. Dr. B.B. Srivastava.

8. Verma, Rekha. *Madhyaprant aur Berar mein Savinaya Awagya Andolan*, 1903-34. HS Gour. Dr. G.S. Tripathi.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

1. Agarwal, Rajesh Kumari. *A comparative study of related needs, academic achievement and sociometric factors of college dropouts and non dropouts of Bareilly and Moradabad divisions of U.P.* Rohilkhand.

2. Lal Singh. *A study of power motive in relation to sex and value orientation*. Rohilkhand.

3. Madnawat, A.V.S. *A study of creativity in relation to intelligence and manifesto anxiety of higher secondary school boys*. Rajasthan.

4. Manju Lata. *A study of relationship of cognitive style with scholastic achievement and intelligence*. Rohilkhand.

5. Mishra, Jyotsna. *Impact of home and socio-cultural environments on infant behaviour and development*. Utkal.

6. Nagaich, Narendra Kumar. *The effect of home environment and parenting style on some personality variables: A study of disadvantaged tribal population of Madhya Pradesh*. HS Gour.

7. Razeena Padman, M.S. *An investigation into the effect of illicit drug use on certain personality factors*. Kerala.

8. Shankhdhar, Suresh Chandra. *Self-concept as related to academic achievement and level of aspiration*. Rohilkhand.

9. Sukhdev Singh. *An empirical investigation of the diagnostic utility of word association, emotional indicators*. Punjab.

Sociology

1. Arunkumar. *The National Service Scheme at the Nagpur University: A case study*. Nagpur.

2. Aslam Mahmood. *Determinants and consequences of internal migration of males in India: A district wise analysis*, 1961-71, JNU.

3. Chatterji, Roma. *Folklore and the formation of popular consciousness in a village in the Purulia District of West Bengal*. Delhi.

4. Kapur, Mala. *The moral education of primary school children : A sociological perspective*. Delhi.

5. Sabharwal, Sherry. *Organizational approach to environmental control : A study of the cotton textile industry in Punjab*. Panjab.

Social Anthropology

1. Gugihal, Sayabanna Nagappa. *Lamaism: Change and continuity*. Karnatak.

Political Science

1. Ashok Kumar. *Vaidik yugeen shasan vyavastha*. Magadh.

2. Basu, Alaka. *Problems of old age in India with special reference to primary and secondary teachers in West Bengal*. Calcutta.

3. Gupta, Vinod Kumar. *Rohilkhand kshetra kee rajnaitik gatividhiyan: Rohilkhand kal*, 1748-1800 *ka ek rajnaitik adhyayan*. Rohilkhand.

4. Jain, Meenakshi. *The Congress Party*, 1967-1977. Delhi.

5. Jha, Bhog Nath. *Profile of a local power structure at grass roots*. LN Mithila.

6. Kaushal, Girish Chandra. *The organisation and functioning of municipal administration in Uttar Pradesh with special refe-*

rence to the Municipal Board of Chandausi District, Moradabad. Rohilkhand.

7. Mohapatra, Kalpana. *Political philosophy of Swami Vivekananda.* Utkal.

8. Sharma, Ramji Dass. *A study of India as a factor in the U.S. policy towards East Pakistan, Bangladesh from* 1966 *to* 1972. Panjab.

9. Sreeranjani Subba Rao, Khasunaveesu. *Struggle for freedom: A case study of the East Godavari District*, 1905-1947. Andhra.

Economics

1. Agarwal, Gunjan. *Analytical study of balance of payments position of India since planning.* Rohilkhand.

2. Bajracharya, Bhuban Bajra. *Some aspects of the agricultural growth in Nepal.* Delhi.

3. Bansal, Poonam. *Trends of urbanization in 'Kaval' towns of Uttar Pradesh since* 1951. Rohilkhand.

4. Indrakant. *Effect of price and income on household expenditure pattern in Andhra Pradesh : Some policy implications.* Osmania.

5. Joseph, K.V. *Migration and economic development of Kerala.* Kerala.

6. Mahajan, Ram Chandra Bhimajee. *A study of the working of state transport services in Maharashtra.* Devi Ahilya.

7. Mohammad Ahmad. *Foodgrains price policy in India since* 1950-51. Rohilkhand.

8. Mohanty, Nagendra Charan. *Technical change and agricultural development in Orissa : A case study.* Utkal.

9. Nanje Gowda. *Public expenditure under planning in Karnataka.* Bangalore.

10. Pasra, Madhu. *The role of Syndicate Bank in agricultural finance with special reference to Moradabad Division.* Rohilkhand.

11. Ram Prasad. *Agricultural taxation in U.P.: Its problems and prospects.* Rohilkhand.

12. Roy, Durgadas. *Financial intermediation in economic development of India: A case study.* **D. Litt.** RBU.

13. Sharma, Radhey Shyam. *Administration of Sales Tax: A comparative study of selected northern states of India.* Rajasthan.

14. Sharma, Sandhya. *Bijnor Janpad mein laghu udyogon ka adhyayan.* Rohilkhand.

15. Sidhu, Harbans Singh. *Employment, income and consumption of rural labour households in a green revolution region: A case study of Panjab and Haryana.* JNU.

16. Singh, Neelam. *Foreign ownership, size and performance of a firm: A case study of Indian pharmaceutical industry.* Delhi.

17. Tripathi, Herambh Dutt. *A critical and analytical study of the role of multinational corporations (M.N. Cs) in the industrial and economic development of India.* Rohilkhand.

18. Tripathi, Shanti. *Bharat mein nari kalyan ka adhyayan*, 1951-1982. Rohilkhand.

19. Vijay Luxmi. *Financing of small scale industries in U.P.* Rohilkhand.

Military Studies

1. Singh, Sudha. *Nuclear Pakistan and India's national security.* Rohilkhand.

Education

1. Agarwal, Govind Swaroop. *The study of effectiveness among the secondary school teachers in relation to professional attitude, anxiety, risk taking behaviour, experience and location of the schools in the Moradabad District.* Rohilkhand.

2. Dogra, Neelam. *Effect of training in context development strategies upon class room communication behaviour patterns.* Panjab.

3. Ekbote, Eknath Ramkrishna. *Development of a strategy for integration of skills in teacher training.* Baroda.

4. Gagan Deep Kaur. *Defence Mechanism used by the adolescents in different school environments and their impact on their adjustment to school and home.* Panjab.

5. Grewal, Charanjit. *A study of physical fitness, attitude toward physical activity and adjustment among university students across socio-economic levels.* Panjab.

6. Gupta, Rajendra Prakash. *Swami Vivekanand ke shaikshik vicharon ka adhyayan.* Rohilkhand.

7. Jethawani, Premila M. *An investigation into the frustration of school going adolescents of Kutch District in context of coognitive and non-congnitive variables.* Patel.

8. Malla, Sarbagya Bhakta. *An investigation into the policy and procedure of procurement and utilization of financial resources in school education of Nepal.* Delhi.

9. Munswamy, Manjula. *Development of a curriculum of family life education for higher secondary students and a study of its effectiveness.* Baroda.

10. Padhy, Narayan. *Effects of schooling on the development of logical thinking and adjustment among elementary school children.* Utkal.

11. Pradhananga, Gajendra Bahadur. *Evaluative study of elementary teacher education curriculum of Nepal.* Panjab.

12. Raj Rani. *A factorial and validational study of the abilities involved in learning chemistry at the secondary stage.* Delhi.

13. Reet Mahinder Singh. *Physical fitness norms of Panjab State High School boys.* Panjab.

14. Sharma, Rajendra Dutt. *An experimental study of the performance of high school students of low, average and high creativity as a function of the instructional media and learning tasks in Physics.* Panjab.

15. Sriviha, Prayad. *Supervisory role of Principals Regional Education Division II of Thailand as perceived by self and teachers.* Panjab.

16. Tripathi, Abha. *Self-image, self-disclosure and self-observation of the behaviour-pattern among socially advantaged and disadvantaged school-going adolescents.* Panjab.

17. Umesh Chandra. *A comparative study of the adjustment problems and high creative-high intelligent and high creative-low intelligent children in secondary schools.* Rohilkhand.

Commerce

1. Bhandari, Manmohan Chand. *Financing integrated rural development programme in Gujarat State: An analytical study.* Baroda.

2. Gupta, Chittranjan Kumar. *Multinational corporations and Government revenues.* Rohilkhand.

3. Gupta, Naresh Kumar. *Role of the industrial credit and investment corporation of India in the industrial development of India.* Rohilkhand.

4. Jain, Ram Kishore. *Changing pattern of disclosure in financial statements of selected Indian companies.* Rajasthan.

5. Mishra, B.P. *Madhya Pradesh mein antarkshetriya arthik vishamtayen.* Devi Ahilya.

6. Rajagopalan, P. *A study on productivity of agricultural investment finance with special reference to Kerala.* Calicut.

7. Singh, Chhetra Pal. *India's trade in textile goods with the United States of America since* 1970. Rohilkhand.

Home Science

1. Bhardwaj, Purnima Om Prakash. *Response of under privileged school girls 8-15 years to hematinic supplementation and impact on selected functional area.* Baroda.

Business Management

1. Bahl, Praveen. *Trade unionism in the LIC of India.* Rajasthan.

2. Paraskar, Wasantrao Daulatrao. *Performance appraisal of managers in semi-government organisations in Maharashtra.* Amravati.

CLASSIFIED ADVERTISEMENTS

INTERNATIONAL INSTITUTE FOR POPULATION SCIENCES

(Deemed University)

Govandi Station Road, Deonar,
Bombay - 400088

M.Phil DEGREE PROGRAMME IN POPULATION STUDIES

Applications are invited, on prescribed forms, from the eligible candidates for admission to the M. Phil Degree Course in Population Studies commencing from 6th July 1987. The course is of 18 months (3 semesters) duration. Candidates seeking admission to the course should have Master's degree in any of the subjects: Demography, Statistics, Mathematics, Economics, Sociology, Social Anthropology, Psychology and Geography of a recognised University with the minimum of 50% marks, and in case of Master's degree holders in any other subject from a recognised University with the minimum of 50% marks should have at least 5 years experience in the field of population. Those who have appeared for M.A./M.Sc. examination in any of the above subject but whose results are not yet announced, may also apply. Lecturers working in the Universities/Post Graduate Colleges seeking admission to the M. Phil degree course can send their application through their employer.

Past students of the Institute who have successfully completed Certificate/Diploma in Population Studies after having Master's degree with at least 50% marks are also eligible for admission. For such students the duration of the Course will be only one semester. All those admitted to the course will be required to stay at the Institute's Hostel.

Two seats are reserved for Scheduled Caste/Tribe candidates. In case suitable candidates are not available, the seats will be treated as unreserved.

Requests for the prescribed form and other particulars should be addressed to the Administrative Officer and should be accompanied by a self-addressed envelope, at least of 25 x 12 cms. size with Rs. 2.20 stamp duly affixed.

Applications completed in all respects should reach the Administrative Officer on or before 25th May, 1987.

K. Srinivasan
DIRECTOR

UNIVERSITY OF DELHI

DELHI-110007.

Estab. IV/108/87 **Dated the 18th March, 1987**

Applications in the prescribed form are invited for the following posts :-

S.No.	*Department*	*Designation*
1.	Arabic	One Reader (Modern Arabic Literature)
2.	Modern Indian Languages	One Reader in Tamil (++)
3.	Persian	One Reader
4.	Punjabi	One Reader (+++)
5.	Sanskrit	One Reader
6.	Anthropology	(i) One Reader *(ii) One Laboratory Attendant
7.	Botany	One Reader
8.	Chemistry	(+) (*) (i) One Technical Assistant (Temporary) (Reserved for Scheduled Tribe candidate) (*)(ii) Two Laboratory Attendants (One Reserved for Ex-servicemen candidate)
9.	Geology	(i) One Lecturer (*)(ii) One Technical Assistant (*)(iii) One Senior Laboratory Assistant
10.	Physics & Astro-physics	(i) One Professor (ii) One Reader (iii) One Lecturer *(iv) Two Laboratory Attendants (Temporary)
11.	Chinese & Japanese Studies	(i) One Reader in Chinese Politics (**) (ii) One Reader in Japanese History (**) (iii) One Lecturer in Chinese Political Geography(**) (iv) Two Research Associates in Chinese Studies(**)
12.	Commerce	Two Readers
13.	Economics	(i) One Professor (Sir Shankar Lal Professor of Mathematical Economics) (ii) One Professor (Public Economics) (iii) One Reader.
14.	Political Science	One Lecturer (Temporary Upto 31-8-1988)
15.	Social Work	Two Lecturers (One Temporary)
16.	Sociology	(i) One Professor (ii) One Lecturer (Temporary upto 29-10-1988) (iii) Two Research Associates
17.	Campus Law Centre	One Reader
18.	Law Centre No. I	(i) Two Readers (ii) One Lecturer
19.	Law Centre No.II	One Part-Time Lecturer
20.	Music	(i) Four Lecturers *(ii) One Tabla Accompanist (Temporary upto 12.6.1988)
21.	Computer Science	One Reader (++)
22.	Mathematics	One Reader (++)
23.	Sports Council	One Assistant Director of Physical Education (Female)

24.	Central Office	(i) Stenographers (English) (Certain percentage of posts are reserved for Scheduled Caste/Scheduled Tribes/Ex-Servicemen candidates) (ii) One Senior Technical Assistant (Temporary) (for Microprocessor)
25.	Education	*(i) Two Senior Laboratory Assistants (One each in Psychology and Science) *(ii) One Audio Visual Assistant
26.	W.U.S. Health Centre	(i) One Part-Time Dentist (Temporary for 3 years) (+)*(ii) One Nurse (Reserved for Scheduled Caste Category) *(iii) One Pharmacist (Reserved for Scheduled Tribe Category)
27.	University Science & Instrumentation Centre	(i) One Technician Grade V (ii) One Technician Grade VI (iii) One Attendant (Workshop)

(+) Candidates of General Category may also apply. However their candidature would be considered if no Scheduled Caste/Scheduled Tribe candidate is found suitable.

(++) Those who had applied for these posts in response to our Advt. No. Estab. IV/101 dated **1-6-1985** need not apply again. They may supply additional information, if any.

(+++) Those who had applied for these posts in response to our Advt. No. Estab. IV/107/86 dated the 14-10-1986 need not apply again. They may supply additional information, if any.

(*+) Tenure of the posts at present is upto 1989 but is likely to continue on permanent basis.

Scales of Pay for the Posts are :

Professor : Rs. 1500-60-1800-100-2000-125/2-2500.

Reader : Rs. 1200-50-1300-60-1900.

Lecturer/Assistant Director of Physical Education (Female) : Rs. 700-40-1100-50-1600.

Part Time Lecturer

(i) Rs. 500/- p.m. (fixed) for work load ranging from 3 to 6 hours per week.

(ii) Rs. 750/- p.m. (fixed) for work load ranging from 7 to 10 hours per week.

Research Associate

A-Rs. 1400/- p.m. fixed
B-Rs. 1600/- p.m. fixed
C-Rs. 1800/- p.m. fixed
D-Rs. 2000/- p.m. fixed

(*On the recommendation of the Selection Committee*)

Sr. Technical Asstt. Rs. 1640-60-2600-EB-75-2900 (Revised).

Technical Assistant/Nurse/Audio Visual Asstt./Technician Grade V : Rs. 1400-40-1800-EB-50-2300 (Revised).

Sr. Laboratory Asstt./Technician Grade VI/Pharmacist. : Rs. 1320-30-1560-EB-40-2040 (Revised).

Stenographers (English)/Tabla Accompanist : Rs. 1200-30-1560-EB-40-2040 (Revised).

Laboratory Attendant/Attendant (Workshop) : Rs. 800-15-1010-EB-20-1150 (Revised).

Part Time Dentist : Rs. 600/- p.m. fixed for visiting the Health Centre three times in a week for 2½ hours in each visit.

All posts except those of Research Associates, Part-time Lecturer and Part-Time Dentist carry D.A., C.C.A. and H.R.A. tec. as admissible under the rules in force in the University from time to time.

Essential Qualifications for

Professorship : An eminent Scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Readership : Good academic record with at least second class Master's degree in a relevant subject with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research, or (ii) innovation in teaching methods or (iii) production of teaching materials.

Five Years' experience of teaching in under-graduate/post-graduate classes and/or post doctoral research work with evidence of published work.

Note : Second class would mean atleast 50% marks in the subject or equivalent grade.

Lecturership : (Other than Lecturership in Law and Music).

(a) A Doctorate degree or research work of an equally high standard; and

(b) Good academic record with at least second class (C in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing interdisciplinary programmes, the degree in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax the requirement of at least second class in Master's degree examination in terms of level achieved at the said examination as prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing good academic record, (wightage being given to M. Phil or equivalent degree or research work of quality) may be appointed on the condition that he will have to obtain a Doctor's/M.Phil degree or give evidence of research of high standard within ten years of his appointment failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation

1. For determining "Good academic record" the following criteria shall be adopted:

(i) A candidate holding a Ph.D./M. Phil degree should possess at least a second class Master's degree; or

(ii) A candidate without a Ph.D./M.Phil degree should possess a high second class Master's degree and second class in the Bachelor's degree; or

(iii) A candidate not possessing Ph.D./M. Phil degree but possessing second class Master's degree should have obtained first class in the Bachelor's degree.

2. Persons having secured at least 55% marks or more shall be deemed to have passed the examination high second class.

Lecturership in Law

Good academic record with at least second class (C in the even point scale) Master's degree in Law from an Indian University with relevant specialization or equivalent degree from a foreign University.

Part-Time Lecturership in Law

Must be enrolled as an advocate of a High Court and should have actually practised at the bar for not less than five years.

Lecturership in Music

(a) Good academic record with at least second class (C in the seven point scale) Master's degree in a relevant subject or an equivalent degree or diploma recognised by the University; and

(b) Two years research or professional experience or evidence of creative work and achievement in his field of specialisation or a combined research and professional experience of three years in the field as an artist of outstanding talent.

OR

A traditional or a professional artist with highly commendable professional achievement in the subject concerned.

Research Associate

Consistently good academic record with first or high second class (B+) Master's degree or an equivalent degree of a foreign University in the subject concerned.

Note: Initial appointment will be for a tenure period of 3 years, extendable by another 2 years only. In no case the tenure will extend beyond 5 years in all. Candidates for the post of Research Associates in Sociology are required to submit 5 copies of a suitable research proposal.

Assistant Director of Physical Education (Female)

(i) A Master's degree in Physical Education (High Second Class) with Diploma in Sports Coaching from a recognised Institution.

OR

A Master's degree in Physical Education (High Second Class) with a record of having represented his University at the Inter University level/State in the National Championship.

(ii) Experience in organising games and sports (as exemplified in handling of about half a dozen teams in a year in his Institution and their participation in University/Inter Collegiate Tournaments) and ability to encourage mass participation in games and sports.

Stenographers (English)

Matriculation or equivalent qualification with proficiency in Shorthand at a speed of not less than 80 w.p.m. and proficiency in Type-writing at a speed of not less than 35 w.p.m.

Note: Candidates for the posts of Stenographers will also be required to appear and qualify in the tests in General English, Shorthand and Type-writing to be held by the University.

Senior Technical Assistant (For Microprocessor)

(1) Post-graduate degree in any Social Science with Statistics/Quantitative Methods as part of the curricular programme.

(2) Adequate knowledge of Data Processing in FORTRAN IV and familiarity with other softwares like DBASE or GRAPHIC.

(3) At least one year's experience of working on and maintaining a Micro Processor.

(4) Familiarity with and some experience of Word Processing.

Technical Assistant (Chemistry, Geology)

Graduate in Science. Experience in Lab. Techniques of the subject.

Part Time Dentist

Postgraduate degree or equivalent qualification from a recognised Institution with 5 years experience after Postgraduate degree. In those disciplines where Postgraduate degree holders are not ordinarily available, P.G. Diploma or equivalent qualification from a recognised institution with 5 years experience after Postgraduate Diploma.

Nurse

Diploma in General Nursing and Midwifery from a recognised University or Institution and registered as 'A' grade Nurse.

Audio Visual Assistant

(i) Matriculation.

(ii) Licence certificate to operate cinematography equipment in Delhi Cinematography Rules.

Technician Grade V

Diploma in Electrical Engineering with specialization in Airconditioning and Refrigeration with 2 year's experience in the trade.

OR

Certificate course from I.T.I. in Airconditioning and Refrigeration with 8 years' experience in the trade.

Senior Laboratory Assistant (Geology)

Should have passed Senior Secondary (10+2) or equivalent examination with Science subjects from a recognised Institution and have 5 years' experience as Junior Laboratory Assistant in a Laboratory.

Senior Laboratory Assistant (Education-Psychology)

Graduate in Life Sciences (with interest in Phychology).

OR

Graduate in Psychology.

OR

B.Ed. with sound background of Psychology Practicals.

OR

10+2 certificate with at least 5 years' experience in Psychology Laboratory as Junior Laboratory Assistant.

Senior Laboratory Assistant (Education-Science)

Essential : Graduate in Science with Physics and Chemistry.

OR

Should have passed Senior Secondary (10+2) or an equivalent examination with Science Subjects from a recognised Institution and have five years' experience in a recognised laboratory as Junior Laboratory Assistant.

Pharmacist

Matric or equivalent examination. Must have passed the Pharmacist's (Compounder) Course from a recognised Institution and must be a registered Pharmacist with 2 years' experience in the profession is desirable.

Technician Grade VI

Certificate Course from I.T.I. in Airconditioning and Refrigeration with 5 years' experience in the trade.

Tabla Accompanist

1. Proficiency in the art of Tabla playing with particular reference to the accompaniment aspects, both for Vocal (Khayal and Dhrupad gayakies) and instrumental.

2. Degree/Diploma in Tabla/Pakhawaj or should have undergone training in Tabla/Pakhawaj under an established Guru for a period of not less than 3 years.

3. 5 years' minimum experience of accompaniment with eminent artists and as a Solo player.

Laboratory Attendant

Should have passed Matriculation or an equivalent examination with Science subjects.

Attendant (Workshop)

VIII Class pass with atleast 3 year's experience in rapair/maintenance of air-conditioners and refrigerators.

Special/Desirable Qualifications for :

Readership in Tamil

Modern Literature.

Readership in Sanskrit

A person specialising in Epigraphy or Prakrit and Jainism will be preferred.

Readership in Anthropology

Any branch of Physical Anthropology including Bio-Statistics.

Lecturership in Geology

(1) Geoexploration
(2) Engineering Geology
(3) Regional Geology
(4) Mineral Fuels.

Readership in Chinese Politics

(i) Some experience of teaching post-graduate classes.

(ii) Work in the field of Chinese intellectuals.

Readership in Japanese History

(i) Specialisation in Modern Japanese History.

(ii) Ability to use original material in Japanese Language.

Lecturership in Chinese Political Geography

Candidate should have done some work in the area of India-China Border Region and/or China's Border Region.

Research Associates in Chinese and Japanese Studies (For one Post only)

Research experience in the field of China's relations with Africa and/or the third world.

Readership in Commerce
(For One Post only)

Specialization in International Marketing.

Lecturership in Political Science

Specialization-International Law/Public Administration.

Professorship in Sociology

(a) Sociology of Development including Agrarian Structure and Sociology of Movements.

(b) Sociology of Science, Technology and Medicine.

(c) Population and Migration Studies and Quantitative Methods.

(d) Sociology of cognition, knowledge and education.

(e) Historical Sociology and Comparative Ethnography.

Lecturership in Social Work

(i) Teaching experience of degree/post graduate classes.

OR

work experience in Social Welfare Organizations.

(ii) Hons. in Psychology.

Lecturerships in Music

All in Hindustani Music and knowledge of Sanskrit. One each in Sarod, Veena, Violin and Dhrupad.

Readership in Computer Science

Computer System Modelling and Performance Evaluation/Software Engineering/Artificial Intelligence and knowledge based system/Pattern Recognition/Digital Image Processing/Micro-Computer Architecture and Applications/Computer Graphics.

Part Time Dentist

Hospital experience after Post-graduate Degree or Diploma.

Nurse

2 years' experience of ward-duty in a General Hospital.

Senior Laboratory Assistant (Geology)

Experience in handling rocks, minerals and Fossils collections, polarizing, Microscopes and surveying instruments.

Senior Laboratory Assistant
(Education-Psychology)

Training in handling of computers.

Senior Laboratory Assistant
(Education-Science)

Experience in Laboratory techinques of both Physics and Chemistry.

Audio Visual Assistant

Some training in use of Audio-visual equipment.

Technician Grade V

The candidate should be able to handle the repair, maintenance of Air-conditioning Plants and other air-conditioning and efrigeration machines of various types.

Tabla Accompanist

(1) Knowledge of other percussion Instruments like Dholak, Noal etc.

(2) Knowledge of Hindustani Music (Vocal/Instrumental).

(3) Persons having educational background will be given preference.

(4) Two years of working experience in University/College/Recognised Institution/AIR/Doordarshan.

Laboratory Attendant

Should have worked in a Laboratory.

The prescribed application forms can be had from the Information Section of the University either personally or by sending a self-addressed envelope (size 13 cm x 28 cm) with postage stamps worth Rs. 5.90 Paise.

The candidates will have to produce the original documents relating to their age, qualifications, experience etc. at the time of interview.

Applications (separate for each post) accompanied by attested copies of Degrees, other certificates, marksheets, published research articles etc. should be addressed to the **Registrar**. However, applications for the posts marked asterick(*) should be sent directly to the Head of the Department concerned. The last date prescribed for receipt of applications is **24th April, 1987**.

Note: 1. It will be open to the University to consider the names of suitable candidates for teaching posts who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases, in respect of all the posts on the recommendations of the Selection Committee.

2. Canvassing in any form by or on behalf of the candidate will disqualify.

3. Candidates for teaching posts only from outside Delhi, when called for interview will be paid to and fro single second class rail fare.

4. The University reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant.

Madan Mohan
REGISTRAR

BIRSA AGRICULTURAL UNIVERSITY

KANKE, RANCHI-834006

ADVERTISEMENT NO. 1/87

Applications are invited in prescribed form for the following temporary posts under N.A.R.P., I.C.A.R. Scheme alongwith Crossed Postal Order for Rs. 10/- (Non refundable) so as to reach the undersigned latest by **5th May, 1987.** Applications not in proper form, incomplete in any respect, received after due date, or unaccompanied by the required fee will not be entertained. The application forms may be had from the office of undersigned either personally or by making a written request with a self addressed 23" x 16" cm envelop duly stamped with postage of Rs. 5.90 separately for each post alongwith Postal Order of Rs. 5/- (as the cost of application form). All Postal Orders must be drawn in favour of the Comptroller, Birsa Agricultural University, Ranchi-834006.

(A) Head Quarter Posts

(1) **Production Economist : (1 post) : Pay Scale** Rs. 1200-1900/-.

Qualifications : (i) Doctorate degree in Agril. Economics with specialisation in production Economics. (Relaxable to high second class M.Sc. post-graduate qualification in cases of candidates with exceptionally distinguished records of productive research).

(ii) 7 years experience of teaching/Research/or Extension in the subject concerned.

(2) **Junior Statistician : (1 Post) : Pay Scale:** Rs. 700-1600/-.

Qualifications : (i) High Second Class Master degree in Statistics or Agriculture Statistics.

(ii) At least two years experience of teaching/Research/or Extension in the subject concerned.

(B) Regional Stations Post

(1) **Associate Directors : (2 Posts) : Pay Scale** Rs. 1500-2500/-

(One each at Chianki, (Palamu) and Darisai (Singhbhum)

Qualifications

Essential (i) Doctorate degree in any branch of Agriculture Science (for post at Chianki) and Doctorate degree in Agronomy/Soil Science/Water Conservation (for post at Darisai).

(ii) 10 years experience of teaching/Research or Extension in the subject concerned.

Desirable : (iii) Good research experience as evidenced by published papers.

(2) **Senior Scientist Cum Associate Professor (13 Posts) : Pay scale** of Rs. 1200-1900/- (Ist 8 posts for Chianki and other 5 Posts for Darisai Stations).

(a) One each in Agronomy, 2 Soil Science, 3 Plant Breeding, 4 Plant Pathology, 5 Entomology, 6 Soil Water Conservation/Farm Machinery, 7 Extension. (b) 8 Animal Production (For Chianki Station) 9 Agriculture, Engineering, 10 Soil Science/Soil and Water Conservation, 11 Agronomy, 12 Plant Breeding, 13 Horticulture (for Darisai Station).

Qualifications : (i) Doctorate degree in Agronomy for post at Sl. 1, Soil Science for post at Sl. 2, Plant Breeding for post at Sl. 3, Plant Pathology for post at Sl. 4, Entomology for post at Sl. 5, Agril. Engineering/Soil and Water Conservation Engineering/Farm Machinery for post at Sl. 6, Extension Education for post at Sl. 7, and Doctorate degree in Vety. Sci. with specialisation in Animal Production for post at (b) Sl. 8, Agriculture Engineering Water Shed Hydrology for post at Sl. 9, Soil Science and Water Conservation for post at Sl. 10, Agronomy for post at Sl. 11, Plant Breeding for post at Sl. 12 and Horticulture for post at Sl. 13, as above (Relaxable to High Second Class M.Sc. Post-graduate qualification in case of candidate with exceptionally distinguished record of productive research).

(ii) 7 years experience of teaching/Research/or Extension in the subject concerned.

(3) **Junior Scientist-Cum-Assistant Professor (15 Posts) : Pay Scale** Rs. 700-1600/- (1st 4 posts at Chianki and other 11 Posts at Darisai).

One each in 1 Agronomy, 2 Plant Breeding, 3 Soil and Water Conservation/Farm Machinery, Agril. Engineering, 5 Farm Machinery, 6 Water Management, 7 Soil and Water Conservation, 8 Landuse/Soil Conservation, 9 Agrostology, 10 Weed Control, 11 Plant Breeding, 12 Plant Pathology, 13 Entomology, 14 Agriculture Economics, 15 Asstt. Forage Specialist.

Qualifications : (i) High Second Class Mater's degree or its equivalent Postgraduate qualifications in Agronomy for post at Sl. 1, Plant Breeding for post at Sl. 2, Soil & Water Conservation/Farm Machinery for post at Sl. 3, Agriculture Engineering for at Sl. 4, (Chianki Station post). Agriculture Engineering with specialisation in Farm Machinery for post at Sl. 5, Water Management for post at Sl. 6, Soil and Water Conservation for post at Sl. 7, Landuse/Soil Conservation

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INDIAN INSTITUTE OF TECHNOLOGY

KHARAGPUR

ADMISSION TO MASTER OF REGIONAL PLANNING PROGRAMME 1987-88

No. IIT/SS/13(MRP)/87-88 Dated March 5, 1987

The Institute offers, *inter alia* a 3-semester postgraduate course in Regional Planning leading to the degree of MRP. for candidates with either Bachelor's degree in Architecture/Civil Engineering or Master's degree in Geography/Economics/Statistics/Sociology/Social Anthropology. Candidates with any of these backgrounds who have qualified in Graduate Aptitude Test in Engineering (GATE) or in the all-India examination of the UGC (NET) – not earlier than two years previously are eligible for admission. All selected candidates are eligible for scholarship of Rs. 1000.00 per month.

Prescribed application form and other details for admission in the session 1987-88 which will commence on July 21, will be available from May 22, 1987.

IPB/IIT/87

Deputy Registrar (Academic)

for Sl. 8, Agronomy/Agrostology for post at Sl. 9, Weed Control for post at Sl. 10, Plant Breeding for post at Sl. 11.

Plant Pathology for post at Sl. 12, Entomology for post at Sl. 13, Agriculture Economics for post at Sl. 14, and Agronomy with forage specialisation for post at Sl. 15 (for Parisai Station posts).

(ii) At least two years experience of teaching/research/or Extension in the subject concerned.

Technical/Administrative and Supporting Staff for Chianki and Darisai Stations.

(1) Survey or Hydrology (2 Posts) for Darisai : Pay Scale 700-1600/-.

Qualifications : (i) M. Tech. degree in Agri. Engineering with specialisation in Hydrological Survey.

(ii) At least two years experience of teaching/Research or Extension in the subject concerned.

(2) Farm Superintendent : (1 Post) : Pay Scale : Rs. 700-1600/-

For Darisai Station

Qualifications : (i) High Second Class M.Sc. degree in Agronomy/Agriculture Economics.

(ii) At least two years experience in Farm Management.

(3) Statistician (1 Post for Darisai) Pay Scale Rs. 850-1360/-

Qualifications : (i) B.Sc. Statistics with working experience as Computer Assistant.

(4) Artist Cum Photographer (1 Post for Darisai) Pay Scale Rs. 850-1360/-.

Qualifications : (i) Graduate with training/Diploma in Art-cum-Photography.

Terms and Conditions

(1) Number of vacancies as indicated may increase or decrease as per need.

(2) The University reserves the right not to fill up any post even after selection.

(3) Higher starting salary may be admissible to highly qualified and experienced candidates on the recommendation of the Selection Committee.

(4) Though the Hors. of the posts are indicated above persons appointed may be transferred anywhere within the jurisdiction of the Birsa Agricultural University.

(5) The Selected candidates will be required to execute a BOND before appointment to serve the University at least for a period of three years for posts of the Assistant Professor and below rank and two years in case of posts in the rank of Associate Professor and other superior posts.

(6) The services of the person selected and appointed against the I.C.A.R posts will be temporary and will last only till the duration of the scheme.

(7) All applications should be sent to the address of Establishment Officer (Rectt.) Birsa Agricultural University Kanke, Ranchi-834006 by registered post. Persons already in employment are requested to send their applications through Proper Channel.

(8) All posts are temporary.

R.P. Singh
Establishment Officer (Rectt.)

INDIAN INSTITUTE OF TECHNOLOGY
KHARAGPUR

Advertisement No : IIT/SS/13 (6)/87-88

ADMISSION TO MASTER OF SCIENCE COURSES-1987-88

Applications are invited from candidates possessing **3 Year** Bachelors Degree in science in 10+2+3 or an equivalent system from a recognised university, for admission to the 4th year of 5-Year Integrated courses leading to M.Sc. degree in Applied Geology, Chemistry, Exploration Geophysics, Mathematics and Physics in the session 1987-88. Final Year B.Sc. students whose examinations will be completed by 15.7.1987 and results will be available before 30.9.1987 may also apply for consideration of **provisional selection.**

SELECTION : Eligible candidates will be required to appear at an admission test comprising 2 written papers each of 3 hours duration. They will have to choose any one subject among Chemistry, Geology, Mathematics and Physics as Paper I which will be of Honours standard and choose two subjects in Paper II which will be of subsidiary standard. The medium of examination shall be **English.** Admission will be offered to successful candidates on the basis of merit secured at the admission test.

DATE OF ADMISSION TEST : Sunday May 31, 1987.
EXAMINATION CENTRE : Indian Institute of Technology, Kharagpur.

APPLICATION FORM AND OTHER DETAILS : The prescribed application form and printed Information Brochure containing details about age limit, required combination of subjects at bachelor level, physical fitness, reservation of seats for SC/ST candidates, available scholarships, tuition and other fees etc. can be had from the undersigned by sending in a cover marked "MSc ADMISSION-1987" a request together with a self addressed unstamped envelope of size 9"x 5" and a fee of Rs. 5.00 through Crossed Indian Postal Order or Bank Draft drawn in favour of INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR payable at Technology Post Office, Kharagpur-2 or State Bank of India, Kharagpur-2 respectively.

LAST DATE : for issue of blank application forms from IIT Kharagpur : **March 17, 1987** and for receiving completed application forms by the undersigned : **March 27, 1987.**

IPB IIT 67

Deputy Registrar (Academic)

MANIPUR UNIVERSITY

CANCHIPUR : IMPHAL

Advertisement No. 1

Dated : 10th March, 1987

Applications are invited for the following posts :

Sl. No.	Name of Post	No. of Post	Scale of Pay
1.	DEPUTY REGISTRAR (Reserved for SC/ST candidates)	1 (one)	(A) Rs. 1100-1600/- (B) Rs. 1200-50-1300-60-1900/-
2.	ASSOCIATE PROFESSOR IN COMPUTER SCIENCE	1 (one)	-do-
3.	ASSISTANT PROFESSOR IN COMPUTER SCIENCE	1 (one)	Rs. 700-40-1100-50-1600/-.

There will be allowances like DA, ADA, HRA, Medical Allowance etc. admissible under the rules of the University. Benefits like GPF-cum-pension or CPF-cum-gratuity are also available.

Essential Qualifications

1. **Deputy Registrar :** (A) (i) At least a Bachelor's degree from any statutory Indian or Foreign University and good academic background. (ii) At least 10 years' administrative experience of which not less than 5 years should be in a supervisory capacity, not below the rank of Assistant Registrar or equivalent post in a University or a well-established educational institution. For departmental candidates relaxation of 2 years in experience may be given.

Desirable : (a) Postgraduate qualification. (b) Adequate experience in handling agenda, minutes and procedure of meetings, development work including formulation and implementation of development project/programmes, recruitment and establishment matters.

OR

(B) (i) 8 years' experience as Lecturer in a College or a University with experience in educational administration.

(ii) Comparable qualification in research establishments and other institutions of higher education.

Age : Not more than 45 years, relaxable in the case of SC/ST candidates.

2. **Associate Professor :** (a) Good academic record with a doctorate degree or equivalent published work in Computer Science. Evidence of being actively engaged in (i) Research or (ii) Innovation in teaching methods or (iii) Production of teaching materials.

(b) About 5 years' experience of teaching and/or research or work experience in Computer applications provided that at least 3 years were as a lecturer or in an equivalent position associated with computer system.

OR

(a) Master's degree in Computer Science/Applications or Master's degree in any discipline with a diploma in Computer Science/Applications or Bachelor of Engineering in Computer Science/Electronics and Telecommunications.

(b) Minimum of 5 years' experience in computer system, development, computer programming and in conducting training programmes in computer science.

3. **Assistant Professor :** (a) Doctoral degree or research work of high standard;

(b) Good academic record with at least 2nd Class Master's degree in the relevant subject;

OR

(a) Master's degree in Computer Science Applications or Master's degree in any discipline with a diploma in computer science/electronics and telecommunications;

(b) A minimum of two years' experience in computer systems, development, computer programming and in conducting training programmes in computer science.

Desirable : At least 3-4 years experience in computer programming, software engineering.

Candidates invited for interview for the post of Deputy Registrar/Associate Professor will be given First Class railway fare from the place of origin and air fare from Calcutta or Gauhati, as the case may be, for both ways, on production of travel documents.

Candidates invited for interview for the post of Assistant Professor will be given 2nd Class railway fare from the place of origin and air fare from Gauhati to Imphal for both ways on production of travel documents.

Applications, on plain papers (in duplicate) with attested copies of certificates in support of qualifications and experience showing candidates' name, date of birth, mailing and permanent address, father's name, academic and professinal attainments, administrative/teachning/research experience, field of specializations, publications (to be enclosed with reprints), seminars/conferences attended, details of visits to foreign countries and assessment reports from at least two persons well-acquainted with the candidate's professional work should reach the REGISTRAR, MANIPUR UNIVERSITY, IMPHAL - 795003 on or before **9-4-87**.

Applications received late or incomplete in any respect may not be entertained. Persons already in service must apply through their employers so as to reach this office on or before the last date fixed. No candidate will be considered for appointment unless he/she produces a 'No Objection Certificate' from his/her employer at the time of interview.

INDIAN INSTITUTE OF TECHNOLOGY, DELHI

HAUZ KHAS, NEW DELHI-110016

Advertisement No. 1/87(E.1)

Announcement for Faculty Positions

(A) **Post** : Professor in the Computer Service Centre.

(B) **Pay Scale** : Rs. 1500-60-1800-100-2000-125/2-2500. (Plus allowances as applicable in Government of India).

(C) **Minimum Qualifications/Experience prescribed for Appointment**

"Good Master's degree in Computer Science/Applied Sciences/Engineering with a minimum of 7 to 10 years experience in a responsible capacity in the fields of operations, systems, Users Services and general Planning and management of large computers. The applicants should have adequate competence in these aspects of large modern systems as well as sufficient organisational ability for coordinating and managing the overall operations of the system to make it a commercially viable proposition, in addition to providing efficient services for meeting the educational, research and technical consultancy needs of the Institute.

(APPLICANTS CAN ALSO BE CONSIDERED FOR APPOINTMENT AS OPERATIONS MANAGER OR AS SENIOR SYSTEM PROGRAMMER IN THE PAY SCALE OF Rs. 1500-60-1800-100-2000).

Prescribed application forms may be obtained from the Deputy Registrar (Estt. I), Indian Institute of Technology, Delhi, New Delhi - 110016 either in person or sending by post, a self-addressed stamped envelope (size 10 x 23 cms) bearing postage stamps of 95 paise latest by **23-4-1987**. Last date for submission of application form alongwith Indian Postal Orders in favour of Registrar, IIT Delhi worth Rs. 7.50 (No fee for SC/ST candidates) is **30-4-1987** for candidates in India and **7-5-1987** for candidates from abroad.

Persons employed in Government/Semi Government Organisations/Autonomous Bodies should submit their applications through their employers.

JOINT ADMISSION TO THREE SEMESTER M. TECH PROGRAMME, JULY 1987

(with Scholarship)

OF

INDIAN INSTITUTE OF TECHNOLOGY

BOMBAY, DELHI, KHARAGPUR & MADRAS ★

GENERAL: Applications in prescribed form are invited for admission to the three-semester M. Tech. programme offered by the four Insitutes and M. Arch, MCP and MRP programmes offered at IIT Kharagpur only.

DISCIPLINES: Disciplines and areas of specialisation for the Master's programmes of the four IITs are given in the information brochure that would be sent along with the application form.

MINIMUM QUALIFICATION FOR ADMISSION: The candidates for admission to the Master's programmes mentioned in the brochure must have (a) a Bachelor's degree in Engineering/Technology or an equivalent degree, a Master's degree in Science or a Bachelor's degree in Architecture and (b) a valid GATE SCORE.

Candidates who have been successful in the GATE 1987 but whose results of the qualifying degree examination are yet to be declared and will complete all requirements for the degree latest by July 31, 1987 may also apply for consideration of provisional admission.

A candidate admitted once to an M. Tech /M. Arch./MCP/MRP programmes and have availed scholarship is not eligible for admission within the same or any other Institute on the same GATE SCORE card.

Seats are reserved for SC/ST candidates as per rules.

INFORMATION BROCHURE, APPLICATION FORM AND BASIC DATA-CUM-CHOICE SHEET: These can be obtained by sending

i) the application-cum-registration fee of Rs 30/- by a crossed bank Draft in favour of the IIT to which the request is made, drawn on the State Bank of India of the same place

ii) a letter of request mentioning the details of the Bank Draft. and

iii) two slips of size 5 cm x 10 cm indicating the applicant's postal address in capital letters, to any of the following:

The Chairman, GATE
Indian Institute of Technology
Bombay 400 076, or Delhi 110 016, or
Kharagpur 721 302, or Madras 600 036

Issue of Application Forms to commence on – April 16. 1987

LAST DATE for :

Issue of Application Forms – by post . April 30, 1987

at the counter ; May 7. 1987

Receipt of completed applications . May 8. 1987

Candidates who are desirous of joining as sponsored, part-time and self-financing foreign students should not apply in response to this advertisement. They should contact directly Dy. Registrar (Academic/P.G. students) of the concerned Institute for application form and other details.

★For admission to IIT Kanpur please look for separate advertisement to be issued by IIT Kanpur. IPB/IIT/87

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429.
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

University News

16 APR
C.F.T.R.I. MYS

MONDAY, APRIL 6, 1987

Rs. 1.50

- University Libraries Network
- Endogenous Technological Temper
- Research in Music
- Awards for Science Popularisation
- Informatics Institutes
- IGNOU Study Centre

KARNATAK UNIVERSITY
DHARWAD

No. KU BOA/ADVT/86/655

Dated : 17-3-1978

Applications (Eight Sets) in the prescribed forms are invited for the below mentioned posts in the Post-Graduate Departments/ Kannada Research Institute at Dharwad, Karwar and Belgaum of the Karnatak University, Dharwad so as to reach the Registrar on or before **16th May, 1987**, 5 p.m. by Registered post A.D., from duly qualified candidates of Indian Nationality. Indian Nationals residing abroad may also apply.

1. **Posts Graduate Department**

Professors (15 Posts): One each in Kannada (Specialised in Veerashaiva Literature), Music, Director (K.R.I.), Anthroplology, Library Science, Sociology, English, Commerce, Education, Hindi, Psychology.

Two Each in Botany (One post specialised in Morphology & Morphogenesis), Economics (One post specialised in Economic Theory/Econometrics).

Readers (33 Posts) : One Each in English, Radio Physics/Electronics (Desirable in Electronics), Economics, Social Work, Anthropology (Physical), History & Archaeology (K.R.I.), Physics (General/ Solid State), Marathi (Comparative Literature), Physics (Spectroscopy), Sanskrit, Geography, Mathematics, Kannada, Mahayogi Veman Studies, Physics (Radio Physics).

Two Each in Commerce (One post specialised in Cost Accountancy & another with Banking), Political Science, Library Science (One post specialised in Information Science & another with General), Statistics (One post specialised in Demography), Botany.

Three Each in Philosophy, History & Archaeology.

For P.G. Campus Belgaum : One Each in Commerce & Geography.

P.G. Lecturers (45 Posts) : One each in Kannada (Specialised in Sanskrit), Business Management (Administration), Geography, Physics (Solid State), Statistics, Business Management Studies, A.I. History & Epigraphy, Commerce (Cost Accountancy), Law (Jurisprudent/Criminal Law), Psychology (Clinical), Bio-Chemistry, Commerce, Anthropology (Linguistics), History & Archaeology, Education (Experimental), Botany.

Two Each in Sociology, Social Work, Education, Kannada, Chemistry (In Organic) Zoology, French, Law.

Three in Library Science.

For P.G. Belgaum Campus : One Each in Commerce & Geography.

Two in Mathematics. **Three** in Sociology.

For P.G. Centre Karwar : Three in Marine Biology.

2. **Constituent College Lecturers (26 Posts)**

One Each in Criminology & Forensic Science, Mathematics, Philosophy, Urdu/ Persian, Hindu, Music (Tabala).

Two Each in Education, Music (Vocal), Music (Sitar), Geology, Geography.

Three Each in Law & Statistics. **Four** an Kannada.

A set of 8 application forms and the instructions sheet can be had from the Director, PRASARANGA, K.U. Dharwad-3, in person on presentation of cash Challan for having credited the amount of Rs. 32/- to the State Bank of India, K.U. Campus, Dharwad, or by post duly sending a self addressed 28 x 12 cms., stamped (Rs. 4/-) cover along with a crossed Bank Demand Draft for Rs. 32/- payable to the **Finance Officer, K.U. Dharwad-580003.**

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UNIVERSITY NEWS

VOL. XXV **APRIL 6**
No. 14 **1987**
Price **Rs. 1.50**

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor:
SUTINDER SINGH

ARY & DOCUMENTATION
16 APR 1987
C.F.T.R.I. MYSORE

Indian University Libraries Network

L.S. Ramaiah*

India has a large system of higher education in terms of absolute numbers. In the years after Independence there has been rapid proliferation in the establishment of universities/colleges in the country. Higher education has been given due priority in national planning. The role and importance of higher education has been stated in the Government of India Policy frame document, "Challenge of Education" in the following terms:

> "Higher education has been given a place of special importance because it can provide ideas and men to give shape to the future and also sustain all the other levels of education. The quality of life and pace of development of any nation depends on the ideological climate; the widespread perceptions of history, culture, tradition and values; and the feeling of confidence in human capability to overcome material, social and spiritual problems of living. Higher education and the intelligentsia nurtured by it, have a special role in determining the quality of the overall environment. Higher education also supplied a wide range of increasingly sophisticated and ever-changing variety of manpower needed in industry, agriculture, administration and services".

Today, in our country there are over 150 Universities and institutions deemed 'to be' Universities and about 6000 colleges. It is estimated that the total strength of the University/College faculty are around 2,10,000 and student enrolment about 40 lakhs, which included 40 thousand research scholars and three and half lakhs postgraduate students. This vast academic community need and use information in one way or another.

The need and the importance of University libraries was well empharised by the Radhakrishnan Commission (1948), Kothari Commission (1964) and various UGC Committees in the past. Due to liberal UGC grants under the Chairmanship of late Dr. C.D. Deshmukh and effects of the recommendations of Education Commissions, majority of the University libraries have good physical facilities and moderate document collections.

But during the past decade and a half due to escalation of prices of books, periodicals and other items and shrinking purchasing value of rupee, the university libraries have been finding it difficult to keep their collections up-to-date. They have lost their buoyancy and gradually their collections are becoming inadequate for research. Further the volume of printed materials is doubling every 10 to 15 years. It is impossible now, for any single library to collect and house all the relevant printed material. University libraries cannot any longer stand alone like islands and this is even more so in a developing country like ours with limited book resources. The material in all university libraries in India must be linked together and made available in each of them as the need arises.

**Librarian, Central Institute of English and Foreign Languages, Hyderabad* 500 007.

University libraries have so far been planned and organised individually. There is no national policy till now. Their planning is, therefore, a planning without policy at the national level. National Policy for University Libraries is important because such policy formulation means definition of objectives. The initiative, therefore, taken by the Association of Indian Universities (AIU) to formulate a National Policy for the University Libraries in the country is a timely one in the right direction.

The report of the AIU Committee 'National Policy on University Libraries—Policy Outline' has stated in the objectives, among other things, the need for networking and resource sharing among the Indian universities. To quote in their own words, "Networking and resource sharing among University libraries should be practised by each institution towards utilisation of all resources." But the report has failed to spell out in clear-cut terms what should be such a network. Maybe, the report is only a policy outline, and the Committee might not have felt the need to elaborate it.

Any networking for resource sharing should satisfy the following conditions.

(1) An understanding of the necessity to cooperate;
(2) An acceptance of the responsibilities involved in such cooperation;
(3) The formal network within which to cooperate; and
(4) The tools with which to cooperate.

1. Necessity to Cooperate

It is estimated that the total holdings in the Universities as well as in those of Institutions deemed to be Universities was about 125 lakhs. The annual intake of books is about 9 lakhs and of periodicals 1.1 lakhs. These should not remain like goods sheds. In order to become 'locomotives of progress' and to meet the growing general demand and need for information in the years to come and to maximise the use of their holdings, the Indian university libraries should be linked together by a network system for cooperation. Individually, the university libraries can no longer meet the requirements of the faculty and research scholars. Their modernisation and rejuvination in order to make them buoyant and virile as instruments of service, brooks no delay. Fast developing technologies in information transfer at the international level demand change in the institutions where information is handled. The Indian university libraries are on the threshold and they should prepare themselves to accept this challenge for change to usher themselves into the 21st century.

2. Acceptance of Responsibilities

The participants of the Indian University Libraries Network (IULNET) should accept the responsibilities involved for the network. They are the Union and State Governments, AIU, UGC and the university authorities. Such a network should be backed by legislation, otherwise it will not work efficiently. Education being the common subject for Central and State Governments, the Union Government may come forward with an enactment for a network for cooperation among the Indian universities. The legislation should be based on the principle of coordination rather than control.

The financial component involved for such a network, both software and hardware, may be met by the centre.

3. IULNET

The network shall consist of three units;

1. Central Unit;
2. Specialised Subject-based centres; and
3. University libraries.

The Central Unit can be sited either in the UGC or AIU. It stores consolidated information in computer. It should be linked with the university libraries and specialised subject-based centres with telex and other fast telecommunication facilities.

There should be specialised subject-based centres for (1) Natural Sciences, (2) Applied Sciences/Technology, (3) Social Sciences, (4) Humanities; and (5) Arts. These centres have to be established in various parts of India coordinating activities in their field of specialisation on the model of the Science Information Centre established by the UGC at Bangalore. Already the establishment of such centres for Humanities and Social Sciences at S.N.D.T. Women's University, Bombay and M.S. University, Baroda, have been announced. These centres should be liberally provided with funds to coordinate activities and to provide various referral services.

The university libraries should be equipped to automatise some of their in-house operations and services. They should be provided with microfilming facilities, xeroxing equipment and microprocessors.

4. Tools and Operations

1. Central Unit

(a) The IULNET should maintain a Central Union Catalogue of the total document holdings of

Indian university libraries for facilitating the location of materials. Locating devices are certainly important in mobilising the resources of the University libraries for the purpose of resource sharing.

(b) It also should have Central Union Catalogues of periodical holdings in the university libraries. It should publish a consolidated 'Indian Union Catalogues of Periodicals' (IUCOP) on the model of BUCOP and also bring out Supplements periodically.

(c) It should be the deposit centre for all M. Phil, Ph.D. Dissertations. A copy of all dissertations produced in all universities should be deposited in the centre. They should be available for consultation for Indian and foreign research scholars. At the time of deposit the permission of the research scholars may be obtained to xerox for research purposes as it is the practice at present in U.K. and U.S.A.

(d) The centre should publish the Indian Dissertation Abstracts on the model of Dissertation Abstracts International. It can be quarterly or half-yearly if not monthly.

(e) The centre should also publish Research in Progress. It can be an annual volume of all research topics registered for research in various universities in India.

(f) The centre should also publish 'Index to Theses' yearly as done by the ASLIB for the British University Dissertations. This is at present done by the AIU.

(g) The centre should be able to get xerox copies of periodical articles not available in its own network and within India on the request of university libraries.

(h) The centre should strive for the standardisation of procedures and practices in university library operations.

(i) The centre should conduct short courses and workshops for university libraries from time to time in the ever changing library technology.

2. Specialised Subject-based Centres

(a) These centres should do indexing and abstracting of the documents in their specialisation and supply them to university libraries.

(b) The centres should prepare subject bibliographies for the benefit of users in the field.

(c) They should provide referral services to users.

(d) They can provide translation facilities for foreign and Indian languages wherever they are needed by the users.

(e) They should keep microfilm or microfich copies of core documents published within India and abroad in their specialised fields.

(f) They should provide Selective Dissemination of Information (SDI) services to individual and corporate users.

(g) They should prepare Directories of Special Groups Who's 'Who' in their specialised fields.

(h) They should help the various university libraries in planning the cooperative acquisition schemes.

3. University Libraries

(a) They should agree to resource sharing liberally.

(b) They should prepare check-lists, shelf-lists etc., of their holdings.

(c) They should equip themselves with automatic xeroxing machinery.

(d) They should bring out their lists of additions, current awareness bulletins and distribute them to various university departments, and college and university libraries.

Conclusion

1. Time has arrived to sing the requiem to the isolated library collections in the Indian universities. The collections of all these libraries should be linked up to a network in order to have a proper resource sharing.

2. Resource sharing implies resource acquisition by various university libraries for proper utilisation of their slender resources.

3. Advances in library and information science make the network system as a pre-emptive technology. The Indian university libraries should not lag behind in coordinating their holdings and adopting latest technology to render efficient and effective services to the academic community.

4. Without the help of the network, the teaching-learning processes and the research activities in the temples of wisdom is greatly hampered and it is not on a comparable level with research in other advanced countries. ☐

Women's Status, Family Life Education And the Media

G.B.K. Hooja*

The Indian law-giver, Manu said centuries ago, "*Yatra naryastu poojyane ramante tatra devatah*" (where women are worshipped, there gods roam). Indeed, it is a peculiarity of the Indian culture that the consort of the Lord is also given the equal status of a deity. Durga, Lakshmi, Kaali are goddesses in their own right. So is Savitri, the daughter of god Sun. Not only this, when the name of the Lord and his consort is invoked, the name of the consort receives precedence: Sita Rama, Durga Shankara, Lakshmi Narayana, Radhe Shyama. Mother worship is an inbred mark of Indian psyche. The woman is entitled to a senior position vis-a-vis man and is placed at a higher pedestal.

Yet, during the course of centuries, woman has not always and everywhere enjoyed this position of primacy. The descent of woman in the social scale characterised the degeneration of civilisation. When Tulsi Das said, "*Dhole, ganwaar, pashu aur nari, hain sub taaran ke adhikaari*" (the drum, the villager, the animal and the woman are entitled to receive beating), he tended to signify the low status ascribed to woman in the social milieu then prevailing although he himself was a devotee of the united godhood, Siyarama. It was on this account that Swami Dayananda, who, with Raja Ram Mohan Roy, pioneered the movement for the emancipation of women in the 19th century, listed the Tulasi Ramayana as an unreadable book! History records that civilizations have flourished where women have come forward to occupy their rightful place in the social structure.

And what is the rightful place for a woman?

Woman is, in any case, the "*ardhaangini*" (half) of a man. Without the woman, man is incomplete. Woman may be condemned as the woe of the man in English language, but in the Indian sub-conscience the concept of "*ardha naarishwar*" (half man, half woman god) evokes scientillating feelings. In the middle ages, the Indian Brahmins, who wished to monopolize and commercialize knowledge and, therefore, the study of the *Vedas*, debarred women and the shudras from the study of the sacred scriptures, with lamentable results. When women were disentitled from the study of the *Vedas* and the *Shastras* (scientific texts) dark ages descended, for illiterate and uneducated women could breed only ill-educated progeny. Evil customs prevailed. Faith in "*jadoo, toonaas*" (magic and charms) became the order of the day. Logic and rationalism were given the go by. Travel beyond the seas, "*Kaala Paani*", as it was called, led to excommunication. Forces of adventure and enquiry were eclipsed by cowardice and dogma, and India which once ruled the waves became subservient to Western aggression.

Faced with this challenge, the native defiance and pride of India asserted itself and produced a line of valiant fighters in the cause of women, to name a few, Raja Ram Mohan Roy, Ishwar Chandra Vidyasagar, Bankim Chandra, Swami Dayananda, Gurudeva Tagore, Mahatma Gandhi, and Sarojini Naidu.

While the earlier stalwarts sought to secure equal status for women, Mahatma Gandhi with his uncanny foresight, invited the women of India to participate in India's freedom movement, and they responded splendidly. In fact, Satyagraha offered an ideal weapon to the women of India who wielded it with incredible audacity and courage to fight not only the British Raj but also the social evils of child marriage, drinking, consumption of foreign goods and untouchability, which became an integral part of the Gandhian strategy for Total Revolution. Gandhi trained women in the school of social experience. His success was commensurate with the voluntary participation of women.

Said Gandhi, "Woman is the companion of man gifted with equal mental capacities. She has the right to participate in the minutest details of the activities of man, and she has the same right of freedom and liberty as he. She is entitled to a supreme place in her own sphere of activity as man is in his. . . . Man and woman are equal in status, but are not identical. They are a pearless pair being complementary to one another; each helps the other, so that without the one, the existence of the other cannot be conceived; and therefore it follows as a necessary corollary from these facts that anything that will impair the status of either of them will involve the equal ruin of both."

**Former Vice-Chancellor, Gurukula*
Kangri Vishwavidyalaya,
5, Abul Fazal Road, New Delhi - 110001.

Jawaharlal Nehru also fully realised the role of women in the adventure of national reconstruction. Writing in 1952, he regretted how few women had been elected to the first National Parliament and observed, "I think we are very much to be blamed. It is not a matter of showing favour to anyone or even of injustice, but rather of doing something which is not conducive to the future growth of our country." He went on to say: "I am quite sure that our real and basic growth will only come when women have a full chance to play their part in public life. Wherever they have had this chance, they have, as a whole, done well, better if I may say so, than the average man." "Our laws are man made, our society dominated by man, and so most of us naturally take a very lop-sided view of this matter. But the future of India will probably depend ultimately more upon the women than the men", he added.

Nevertheless, as we make an assessment, while at the threshold of the 21st century, we find that we have yet miles to go and we can hardly relax in our efforts to educate and advance the status of our women-folk, our sisters and mothers.

In her Keynote address on Preparing India's Women for the year 2000, presented to the National Conference on Women held at Kasturbagram in September, 1986, Dr. Sushila Nayar, a veteran freedom-fighter and an associate of Gandhi, deplored the present status of women in the following words:

"The vast majority of our women continue to be ignorant, illiterate, exploited in the home and in society, helpless and dependent, unable to understand their rights or responsibilities, leave aside having the capacity to excercise them. The result is that the nation becomes stagnant and the pace of socio-economic development of India has been greatly slowed down". "Can it be otherwise when one-half of India's population is unable to play an active part in developmental activities and exercise their rights and discharge their duties as free citizens of a free country?" She asked and lamented that there had been a serious set-back with regard to the value system that prevailed during the freedom movement, especially in attitudes regarding the role of women, both among men and even among women themselves. "The main cause for this unfortunate state of women's helplessness and lack of self-confidence to stand on their own feet is illiteracy and ignorance in the midst of poverty for large numbers of women and their families. These have to be overcome and attitudes of men and women in respect of women's role in society have to be radically changed," she observed.

While the situation in rural India, by and large, remains dismal, the urban scenario, however, presents a gleam of hope. Every morning one may see bus-loads and rickshaw-loads of children being driven to the schools. In fact, private schools and "teaching shops" have a tendency to spring up like mushrooms in the urban milieu to meet the ever growing hunger and the felt needs of the city-dwellers for formal education. No doubt, it augurs well for the future. But here too the content of education which is being imparted to them leaves much to be desired.

As it is, the present system of education seeks to produce teachers, administrators, lawyers, doctors, engineers, architects and other subject matter specialists

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at the higher stage and at a lower stage, clerks, assistants and middle level technicians, but hardly any attention is being paid to impart training for "parenthood". So long as the family continues to be the basic unit of social structure, as it must, for otherwise the children are going to be neglected and may grow into unruly monsters or ugly dwarfs, Family Life education should occupy its due place in the educational curriculum. Family Life education is the first need of everyone (male or female) who wishes to raise a family. This would help the younger generation to clarify and sort out various complex questions which inevitably torment their minds. Family Life education is a critical requirement for the adolescent youth who are grappling with the natural problems of growing up, their physical, emotional and mental needs, the struggle between self assertion (self-esteem) and social discipline, relative merits of self-indulgence vs self-restraint, their societal role and personal goals, their fears and anxieties, assaults of modernity and pulls of tradition. What they need is not merely knowledge-oriented or skill-oriented education but also value-oriented education. This will not only help them to steer clear of their own behavioural dilemmas, but, as they grow up and raise their families, to establish a rapport with their growing children.

Powerful media has been placed at the disposal of the modern teacher. The TV has invaded the bedroom of every affluent and not so affluent household. It must be fully harnessed to convey the message of science and sanity, otherwise like the Allah-Din's djin it shall devour mankind.

During their Peace March through the Valsesia Valley in North Italy last summer, the Gandhi-In-Action (India) heard womenfolk in the far flung villages of high Alps bemoan the TV as a menace and wished to know how to combat it. Menace it is, unless controlled.

In India too, the Doordarshan may be faulted on several counts. I accuse it of having deprived our children of the love of books, of the fairy tales narrated by their grand-parents and of the pleasures of out-door life. I accuse it of having robbed our youth of the blessings of the golden *ushas* (the dawns), the life-giving rays of the morning sun, the chirping music of the early birds and most importantly of the invigorating ozons which is available only at that hour of the morning, for having kept glued to the "idiot box" till the late hours of the night, they find it next to impossible to rise early and greet the health-bestowing, glorious dawn and the lovely colourful sunrise.

It does good to note that the Doordarshan has now started a morning programme, commencing with the *Vande Mataram* (I salute the Mother), to be followed by *Dus Kadam*, a programme in physical fitness. It is to be hoped that it would have a healthy influence on young impressionable minds, but for that it shall have to be ensured that it is not sub-merged or distracted by other sensational or semi-sensational features. The timings of the programme too would need to be advanced to synchronise with the sun break for, as it is, seven thirty is the time when the young kids are being prepared for being shunted to the schools and they shall find it difficult to join the physical instructor in the limbering up exercises which should be the aim of the programme. In fact, they would do well to introduce the young ones and the grown ups too to *Surya Namaskara* and *Yogasanas* including *Praanayam* as part of this programme.

Doordarshan does realize that besides providing entertainment, it has to present educational and enlightening programmes with a view to creating national awakening and thus to participate in the developmental adventure. But obviously it is ham-strung by paucity of software. Here is the opportunity and certainly the responsibility of the forward-looking New Teacher, who has at his beck and call the vast and variegated talent of young students waiting to be tapped and directed in a socially constructive channel.

Under the inspiring leadership of its former Chairman, Madhuri Shah, the UGC took the first step to utilize this highly potent medium for improving teaching practices and lessons. It is now left for the Family Education experts to prepare themselves to yoke this Frankenstein into the service of the family and through it the humanity at large.

The Family Planning Association of India (Delhi Branch) recently showed a film, entitled, the First Days of Life. It was an excellent feature regarding sex education. One's only regret was that one saw it 50 years too late!

Creative and Performing Arts must come to the aid of the Doordarshan to enable it to serve as a powerful vehicle for the delivery of the message of women's emancipation so that the enlightened women (mothers) can play their due role in the game of national resurgence competently. As the Sanskrit saying goes: *Maataa nirmaataa bhavati* (The mother moulds) and so does the Doordarshan (and the media). ▣

Convocation

Endogenous Technological Temper

Professor Surajit Chandra Sinha, Director, Centre for Studies in Social Sciences, Calcutta delivered the Convocation Address at the annual convocation of the North Bengal University. In his scholarly address Professor Sinha impressed upon the students, teachers and researchers to accept endogenous intellectuals and creative persons genuinely as colleagues and start a two way communication with them. This will not only strengthen their roots by a proper perception of their ecology but will also facilitate adoption of modern technology by rural folk. Excerpts :

For nearly four decades I have been travelling in different parts of India, mainly in the rural and hill-forest areas, for conducting and guiding anthropological field research. As I review these experiences, I find that contrary to the prevailing stereotype among our urban educated people, the tribals and the peasants in the relatively outlying and isolated regions have endogenously developed and, also adopted, many varieties of tools and techniques for productive activities which are adaptive in their natural environment. Any careful observer will be impressed by their endogenous 'technological temper' and also by their capacity for empirical inductive reasoning. Quite often their cautious hesitation about adopting induced modern technologies is rooted in their feeling of uncertainty about whether the new technology and new knowledge would disturb their social autonomy. It is often not realised that the problem of diffusion of new knowledge, particularly in science and technology, lies, in the inability, or often unwillingness, of the dominant urban people to bring modern technology and science within the social and cultural control of the people in the countryside. I would expect that the students and the members of the various faculties of this University will be interested in communicating with the rural people with a clear awareness of their endogenous technological and empirical temperament. This will enable them to gain a realistic idea about the nature and sources of the knowledge derived from their life experience and also about the specific conditions of constraint in adopting new knowledge. I would not, however, plead the case for 'village science' as good enough for the rural people. Unequivocally, our task is to carry the latest developments of universal modern science and technology within the social reach of the villagers. I would only insist that we should not thrust advanced science and technology in such a way that it would appear to be a monopoly of the outsiders and shake their self-confidence in the manner often followed by the colonial rulers of the past. Also, one should be prepared to learn something of technology and knowledge of the environment from the people who have successfully adapted themselves in particular ecological niches for long periods.

I would also like to draw your attention to the vast untapped reservoir of creativity in the folk culture of the people of the hill and plain sub-regions of North Bengal. Coming from the urban centres we cannot but be deeply impressed by the rural peoples' aesthetic and intellectual capacity for conserving and innovatively re-structuring lores, dances, songs and dramas. In many villages and cluster of villages forming micro-regions we come across local thinkers and creative persons of various kinds who may be regarded by the teachers, researchers and students of the University as fellow thinkers who have significant knowledge about the socio-economic, cultural and political problems in their areas. I earnestly hope that we develop a tradition in this University of taking the endogenous intellectuals and creative persons genuinely as colleagues, and start a two-way communication with them. Such communication will help us to discover the manner in which social and cultural bonds were, and are now, being built up beyond the parochial boundaries of tribes, castes, religions and local communities.

About 80 years ago Rabindranath Tagore in his address to the students, "Chhatrader Prati Sambhasan", at Bangiya Sahitya Parisad stated (translated from Bengali):

> "In our country, too, we will have to exercise special effort and specially attentive thinking in order *not* to let our minds be governed by the printed letters of the books, but to be able to dominate over books. . . We have not yet been able to document a true description of our country. That is why, although we are living in our country, our own country continues to occupy a small place in our realm of

> knowledge. Knowledge attains a firm basis only when the process of learning leads from near to far, from familiar to unfamiliar. The foundation of our knowledge is bound to be weak if it is mainly built up by encompassing things which do not pervade our surroundings, which are not present before us. The strength for receiving and comprehending something outside our direct observation, something unfamiliar, can only be attained if we at first learn to properly and completely grasp things which are familiar to us. . . . If we are disconnected with the concrete reality our heart, mind or vision, whatever we value, will turn narrow and perverted".

Elsewhere, Rabindranath has also indicated how colonial rule has seriously disrupted the natural two-way communication between the town and the countryside that prevailed in pre-colonial India.

I feel that this University has a responsibility of knowing the neighbours of the region in their characteristic environmental contexts from many discipline bases. Such an endeavour will definitely produce new knowledge and interest in the social sciences and the humanities. It is also likely that the students and researchers in the field of biological and material sciences will benefit by exploring the nature of the environment and the peoples' adaptation to the particular ecological set up.

It is indeed very heartening that the Centre for Himalayan Studies has been organized in this University with a multi-disciplinary base. I sincerely hope that a fairly large number of young scholars would be attracted to the programmes of this Centre.

One of the most significant features of contemporary Indian society is an explosion of consciousness from particularistic or local ethnic bases to universal levels. From Kashmir to Kanyakumari,- from Gujarat to Nagaland we witness that various ethic groups and local/regional communities are involved in consciously re-examining and restating their identities. An Angami Naga of Nagaland, for example, is involved in defining in what manner he is an Angami, a Naga, a 'tribal', an Indian, a Christian and a member of the modern world. He is not satisfied with a standard definition of 'national mainstream' vis-a-vis the periphery. He would like to define the character of the Indian mainstream in his own manner. Since independence, apart from the powerful impact of universal adult franchise, exponential growth of the number of the educated (matriculates, graduates, post-graduates and professionals) in the rural and mountainous outlying areas has provided the conscious spokesmen for the construction of new identities and for participation in the new nation building process.

It is important for scholars of the University to properly analyse and understand the transformation scenario, particularly in the immediate hinterland of North Bengal, with an objective and humane perspective. Perhaps the emerging nature of socio-economic and cultural inter-dependence between the people of the hills and of the plains will attract their serious attention. It is through continued involvement in probing and solving such problems that an endogenous thrust for modern knowledge may be created in a wide range of disciplines in this University.

We may recall here a case from the history of Japan. After the Meiji Restoration in 1867 a number of young Japanese scholars became concerned with relieving their country from earthquake disasters which was one of their very important national problems. With sustained research in this area, Japan developed a major Centre for Earthquake Studies within two decades and their scholars did some path-breaking work in the frontier areas of geophysics. We get a lesson from this example that once the people of a country gain confidence through involvement in solving some critical problem of their life situation, they are able to cross the hump of the legacy of perpetual diffidence and playing the role of being mere receivers of knowledge.

Although I have so far emphasized the route to knowledge from the particular to the universal, it has to be clearly kept in mind that a University is ultimately expected to operate within universal global parameters of discourse. It will loose its central sense of direction if it fails to perpetually nurture among the students, researchers and the teachers a determined bid to preserve the universal domain of studies. There should be formal arrangement for inviting Visiting Fellows and Professors and granting sabbatical leaves to the faculty members for keeping the academic community in continuous touch with the latest developments in various fields of knowledge.

I feel that some of the unresolved issues in administration and in human relation in the regional university systems would be substantially solved if an effective balance is struck between a search for social relevance in the pursuit of knowledge through authentic accountability to the regional population and firmly preserving the universal framework for academic discourse and thereby keeping the path of excellence open. The entire University community, including the non-academic staff, must get a feeling that significant socially relevant as well as intrinsically important and devoted pursuit of knowledge are being carried out in this University. ☐

RESEARCH IN MUSIC

A National Seminar on the Problems and Scope of Research in Music was organised by the Department of Musicology, Indira Kala Sangit Vishwavidyalaya, Khairagarh. The Seminar, during its six sessions, discussed possible areas of music research, procedures and methodology of research, and their limitations, etc. Dr. Kamaleshdatta Tripathi, who inaugurated the Seminar, said that the research procedure adopted on the basis of fragmented vision of the universe, which emerged after the Industrial Revolution in the West, was not appropriate for the Indian context. The tradition of Indian thought has developed through holistic vision of the universe and performing arts have not been an exception. There have been radical changes in literature and visual arts, but music has relatively sustained itself against all onslaughts. The simultaneous streams of continuity and change through time and space that have enriched, enlarged and sustained the written and oral tradition together, need to be realised, he added.

Dr. Premlata Sharma, Vice-Chancellor of the Indira Kala Sangeet Vishwavidyalaya suggested that knowledge of languages like Sanskrit, Persian, Urdu, Bengali, Marathi, etc. is essential to be equipped for handling the primary sources. She said it was important that the research material accumulated by the scholars is evaluated in terms of graded importance.

Scholars from all over India and abroad attended the Seminar. Mrs. Nelly Van Ree Bernard of Holland, who spoke on the Problems and Aspects of Reconstruction of Musical Instruments, described preparatory studies, the working drawing, the construction, the tuning, and playing the instrument as the steps for reconstruction of instruments.

She elucidated her thesis with audio-visual aids and a live demonstration performance of a reconstructed instrument—Citara. Dr. Francois Delvoye 'Nalini', from France presented a paper on Problems and Prospects of Critical Studies of Lyrical Texts. She described the methodology she adopted to study 'Dhrupadas' composed by Tansen. She observed that her research had established that it is very difficult to authentically identify 'Dhrupadas' to be a composition of Tansen. Dr. Premlata Sharma spoke on Problems of Reconstruction of Vocal Forms in Old Texts. Dr. Ranganayaki Ayyanagar, of the Banaras Hindu University spoke about linguistic history of the word 'Musicology' which is often used for 'Sangeet Shastra'. Musicology originally started with the study of Bach's music. Sangeet Shastra may be called a branch of musicology. She further said that the word 'Ethnomusicology' should not be used for our own music.

Dr. Subhadra Choudhary, Head of the Department of Musicology, Indira Kala Sangeet Vishwavidyalaya, directed the Seminar.

Seminar on Contemporary Fiction

The Department of English, University of Burdwan, organised an All-India Seminar on Contemporary English Fiction from March 10-14 at the University campus. The Seminar was inaugurated by Dr. Sankari Prasad Baner-

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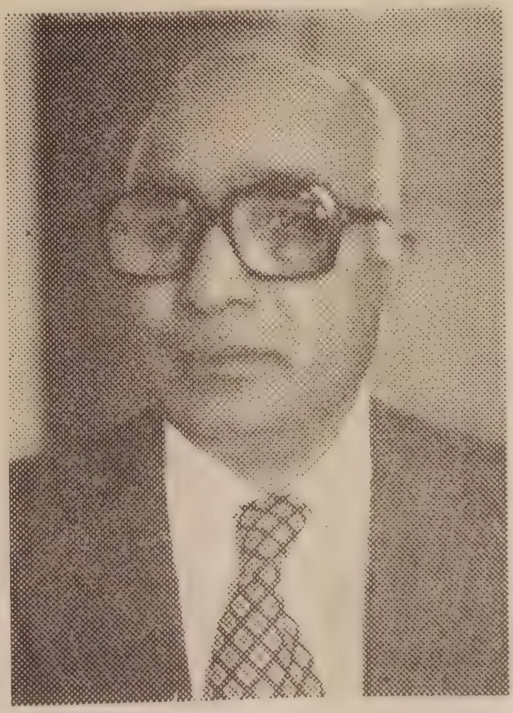
D. Litt for Prof. Ram Reddy

Andhra Pradesh Open University honoured its founder Vice-Chancellor, Prof. G. Ram Reddy, President, Association of Indian Universities and the Vice-Chancellor, Indira Gandhi National Open University by conferring on him the Degree of Doctor of Letters (Honoris Causa) at its first Annual Convocation held on 27th March, 1987. The citation described Prof. Ram Reddy as a man of academic action and leadership—action which is purposeful, fruitful and futuristic in orientation, and leadership marked by a genius for working with people and making people work for a common cause. It went on to say, the distinguished social scientist, scholar and educationist, Prof. Ram Reddy is sobre, thoughtful and humane while being firm in making decisions.



Prof. G. Ram Reddy

The degree of Doctor of Letters (Honoris Causa) was also conferred on Lord Walter Perry, who was the first Vice-Chancellor of the British Open University and held that position for over a decade.

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jee, Vice-Chancellor of the University. Smt. Mahasweta Devi was the chief guest.

The focal theme was fiction written in the English language in any part of the world. Deliberations on British, Indian, American, African and caribbean novels led to creative interactions. The participants of the Seminar accepted the term "contemporary" more in a qualitative than in a mere chronological sense.

Distinguished professors from all over the country attended the seminar. The chief guest, Smt. Mahasweta Devi, an eminent Bengali novelist, spoke as it were from the fiction workshop of her experience in exploring the lives of the tribals and the downtrodden. It was felt that her ideological passion and commitment gave an authentic sincerity to her work as a practitioner of the art of fiction.

Biosphere Reserve for Gir Forest

The Plant Ecology group of the Life Sciences Department of Bhavnagar University has taken studies on the Grasslands and forests especially the Gir Forest—the only home of Asiatic Lion—of Gujarat. The researchers under the leadership of Dr. B.R. Pandit, have recently completed a C.S.I.R. sponsored project on Ecology of Gir Forest, spread over 1400 sq. km. They examined the major plant communities, and productivity of some trees. The biomass production in Gir Forest compares poorly with similar forests in Madhya Pradesh. This is attributed to shallow coarst soil, poor mineral status, and deficient water availability. To remedy the situation, the researchers have forcefully underlined the need for providing grass and tree cover to the barren slopes to check soil erosion. The disturbed ecosystem has to be repaired by afforestation and creation of a biosphere reserve in Gir Forest.

National Seminar on Information Technology

The L.N. Mishra Institute of Economic Development and Social Change organised a one-day national seminar on "Information Technology: Key to Prosperity" at Patna on 24th March 1987. Sponsored by UGC in collaboration with Contech International, New Delhi, the seminar was inaugurated by the State Education Minister, Mr. L.N. Jha. He called upon the people to apply science and technology for all round development of the society. On this occasion Mr. Jha also declared open a Computer Centre and observed that the computer was an effective instrument of development and planning. He pointed out that the information technology could provide a unique supplement to education, planning and economic development. The Government, he said, would be greatly benefited with the information technology and the computer centre.

Prof. D.N. Sharma, Chairman, Bihar Inter-University Board presided.

Utkal Varsity Houses IGNOU Study Centre

A study centre of the Indira Gandhi National Open University (IGNOU) has been opened at the Utkal University, Bhubaneswar. The centre located at the Directorate of Correspondence Courses of the Utkal University forms a part of the regional centre of IGNOU that covers the States of Orissa, West Bengal and Bihar.

According to Dr. G. Sahu, Regional Director of the Centre, the study centre would conduct two diploma courses in management and distance education for the present. Another centre at Cuttack city is likely to be started soon.

Thavaraj Memorial Scholarships

The Jawaharlal Nehru University (JNU) has instituted two scholarships in memory of the noted economist and expert on public finance, late Dr. MJK Thavaraj, who was professor at the Indian Institute of Public Administration and had taught many faculty members at JNU. These scholarships shall be awarded to two meritorious M. Phil students—one each from the Centre for Economic Studies and Planning and Centre for the Study of Regional Development at the School of Social Sciences.

The scholarships shall be for a period of two years and the selection will be on the basis of the position on the merit list at the time of admissions. The scholarship money will be paid out of an endowment of Rs. 1,00,000 created at the university.

Ford Foundation Grant for BAU

The Ford Foundation is reported to have sanctioned a sum of Rs. 8.50 lakh to the Birsa Agricultural University for the development of women's participation in agricultural activities. This was announced by Dr. Lynn Bennett of the Foundation after she visited some villages under University's jurisdiction.

Indian Institutes of Informatics

The Government is reported to

have decided to set up Indian Institutes of Informatics in different parts of the country to train computer software technologists. According to Union Minister of State for Science and Technology, Mr. K.R. Narayanan, the government was conscious of the serious manpower shortage in high tech areas and hoped that the proposed institutes will help ease the situation.

National Awards for Science Popularisation

The National Science Day was celebrated on 28 February as it was on this day in 1928 the renowned Indian scientist Prof. C.V. Raman announced his Noble Prize winning discovery of the Raman Effect. To commemorate the occasion, the Government announced the institution of five national awards for individuals and institutions for the popularization of science.

The first award of Rs. one lakh would be given to an individual or an institution which had made significant contributions to popularise science through English, Hindi or any other regional language. The second award would be given to a national newspaper in English or any other regional language for its contribution in popularising indigenous scientific development. The third, fourth and fifth awards would be given for the best film on science, children and for best science and technology toy.

Agra Varsity to Start 3-Year Degree Course

The Agra University will switch over to 3-year degree course for B.A.. B.Sc. and B. Com examinations from the 1988-89 academic session. The Academic Council of the university is reported to have approved the proposal in principle and the Board of Studies and other bodies of the University have been asked to prepare the syllabus and other details.

Three More Varsities for Rajasthan

The Rajasthan Government proposes to set up three new universities in the State during 1987-88. This was announced by the Chief Minister, Mr. Harideo Joshi, in State Assembly.

The new universities will include an open university, an agricultural university and an affiliating university. With the addition of these three universities, the number of universities in the State will go up to six—one university for each of the six divisions.

B.Tech Degree in Computer Engineering

The Central Government, it is reported, has accorded its approval for starting a B.Tech. degree course in computer engineering at the Regional Engineering College, Kurukshetra from the ensuing academic session. A full-time M. Tech. degree course in electronics and communication engineering has also been approved.

Rural Varsity at Wardha

The Maharashtra Government has decided to set up a rural university at Wardha. The modalities with regard to infrastructure required for the new university are being worked out. The institutes proposed to be brought under the jurisdiction of the new university are also being identified.

Rs. 7 Crore Assistance to Visva Bharati

The University Grants Commission (UGC) is reported to have sanctioned a grant of Rs. 7 crores to Visva-Bharati under the Seventh Plan. This was disclosed by Dr. Nemai Sadhan Bose, Vice-Chancellor of the university. According to him, Rs. 5 crores had been granted for overall development and Rs. 2 crores for special assistance programmes in the Departments of Kala Bhavan, Sangeet Bhavan and Philosophy.

We Congratulate . . .

(1) Dr. D.M. Nanjundappa who has been appointed as Vice-Chancellor of the Bangalore University.

(2) Prof. G. Ram Reddy, President, AIU and Vice-Chancellor, Indira Gandhi National Open University, who has been selected for the Swami Pranavananda Award in recognition of his outstanding work and important contribution to human knowledge in the field of Political Science.

(3) Prof. S. Krishnaswamy, Vice-Chancellor, Madurai Kamaraj University who has been selected for the Swami Pranavananda Award in recognition of his outstanding work and important contribution to human knowledge in the field of Environmental Science and Ecology.

News from Agril. Varsities

Developing Lower Hills of Uttar Pradesh

Dr. S.C. Modgal, Director of Research, G.B. Pant University of Agriculture and Technology, said that the University has submitted a Rs. one crore project on off-season vegetable growing and forestry and energy development in the lower hills (2000-4000 ft. height) of Uttar Pradesh, to the ICAR for Socio-Economic upliftment of the hill farmers. Addressing the farmers gathered at the Kisan Mela held at Research Centre, Majhera (Nainital), he said that besides cereals, pulses and oilseeds, special emphasis would be laid in the project to promote cultivation of fruits like lemon, kinno, Almond, etc. which can successfully be grown at this height.

Mini kits of improved seeds of soybean, maize, rye, paddy, gram and ramdana were also distributed to the farmers on this occasion. They were also taken round the experiment field of the Centre, where they were shown different trials on wheat, lentil, grma, pea and oats.

Sports News

Varsities' Wrestling Team

A 10-member Indian Universities Wrestling Team will participate in the Senior National Wrestling Championship to be held at Bhopal from April 11 to 15, 1987. The team has been finalised at the conclusion of 2-day selection trials organised at Kurukshetra University and will comprise Rajinder Prasad (Captain), (Kurukshetra University); Randhir Singh, Narender Singh, Ram Mehar, Somveer, Dharamveer, (Haryana Agricultural University); Bijender Singh, Anil Kumar, Jatan Singh, (Meerut University); and Ajit Singh, (Maharshi Dayanand University).

The team will be under training at Kurukshetra University under the supervision of Mr. M.L. Saini, Wrestling Coach of the University.

Junior Hockey Team

The Indian Universities Junior Team for participation in the Junior National Hockey Championships will be selected after trials to be organised at Aligarh Muslim University on April 16 and 17, 1987. Players sponsored by various universities who are born on or after 1-1-1969 are being invited for the trials.

The selected team will undergo training at Aligarh under the supervision of Mr. Bhagat Singh, Hockey Coach of the University.

Third World Academy Awards

In pursuance of its aim to facilitate and promote mutual contacts between scientists in developing countries and those in industrialised countries and to further relations between their scientific institutions, the Third World Academy of Sciences (TWAS) has announced its Italian Awards scheme for research and training in Italian laboratories. A number of awards will be made in the year 1987 in Biological Sciences, Chemical Sciences and Geological Sciences for which there is recognised Italian expertise. The awards will be made to researchers of proven ability, working and living in developing countries, for the purpose of carrying out research, learning new techniques, or undertaking some other form of training by working with colleagues in Italian Research Laboratories. The grants will amount to a minimum of Italian Lire, 1,400,000 per month. Limited funds for travel expenses will be available in case these are not covered by other sources. The grants also cover health insurance for the visitors and their accompanying families. A monthly family allowance for those having dependent family members will be granted.

Applicants should be nationals of developing countries, normally with some research experience and with permanent positions at Universities or Research Institutes in developing countries. Closing dates for requesting participation are 30 April 1987 and 31 October 1987. Further details can be had from The Third World Academy of Sciences, C/o International Centre for Theoretical Physics (ICTP) P.O. Box 586-34100 Trieste—Italy.

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
May 9-10, 1987	**National Seminar on Physical Fitness and Sports Standards in Universities**	**To identify various problems impinging upon sports performance and to deliberate on issues having significant bearing on mass awakening and motivation for promoting sports and physical education.**	**Association of Indian Universities (AIU) in collaboration with Mohanlal Sukhadia University, Udaipur.**	**Shri G.S. Sivia, Dy. Secretary (Sports), Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi - 110002.**
May 19-21, 1987	XVIII Indian Sociological Conference	Theme: Sociology and Social Transformation in India.	Department of Sociology, North-Eastern Hill University, Shillong.	Prof. M.N. Karna, Oganising Secretary, XVIII Indian Sociological Conference, Deptt. of Sociology, NEHU, Shillong-793014.
June 1-30, 1987	Summer School in Plasma Physics	To give broad exposure of plasma physics to the students of M.Sc. in Physics and fresh research scholars	Department of Physics, Ravishankar University, Raipur (M.P.)	Dr. S. Guha, Convener,, Dept. of Physics, Ravishankar University, Raipur (M.P.)
September 6-19, 1987	**International Seminar on University Administration**	**To consider the impact upon administration of changes in both the external and internal environment of universities and the development of appropriate styles, structures and management in administration**	**The British Council, London (to be held at the University of Salford, Salford, England)**	**Mr. Stuart R. Bosworth Registrar, University o Salford, Salford, England M5 4WT.**
November 16-20, 1987	Seventh National Symposium on Radiation Physics	To provide a forum for a collective discussion and identification of the emerging new directions in the field of Radiation Physics	Department of Physics, Mangalore University, in collaboration with the Indian Society for Radiation Physics	Dr. N. Lingappa, Convener, Programme Committee, NSRP-7 and Head, Department of Physics, Mangalore University, Mangalore.
November 26-28, 1987	**International Seminar on Instrumental Methods of Electro-Analytical Techniques.**	**To provide a forum to research workers and practitioners for exchange of information and technical perceptions in instrumental methods of electro-analysis.**	**Indian Institute of Science, Bangalore.**	**Prof. M.H. Dhananjaya Principal and Chairman of the Organising Committee, S.J. College of Engg., Mysore.**
December 7-11, 1987	Seventh Triennial International Conference on Thin Films. (ICTF-7)	To take stock of recent progress in the field of science, technology and applications of their films.	Indian Institute of Technology, New Delhi, in collaboration with IUVSTA Thin Film Division and Indian Vacuum Society.	Dr. Lalit Malhotra Secretary, ICTF-7, Thin Film Laboratory, Deptt. of Physics, Indian Institute of Technology, New Delhi-110016.
December 16-18, 1987	International Symposium on Electronic Devices, Circuits and Systems	To provide a forum to research workers all over the world for exchange of information and technical perceptions in electronic devices, circuits and systems.	Indian Institute of Technology, Kharagpur	Prof. N.B. Chakravarti, Department of Electronics and Electrical Communication Engineering, Indian Institute of Technology, Kharagpur - 721302

National Seminar on Physical Fitness & Sports Standards in Universities

The Association of Indian Universities will organise, in collaboration with the Mohan Lal Sukhadia University, a National Seminar on Physical Fitness and Sports Standards in Universities on 9-10 May 1987 at Udaipur.

The climate generated by IX Asian Games in 1982 at Delhi had raised our hopes and it was expected that India was on the way to greater achievements in international sports. The subsequent developments, especially the poor performance of Indian sportsmen at the international competitions, have proved it otherwise. "What ails Indian Sports?" is being debated everywhere, and the urgency for improving standards in sports and physical fitness is realised in every quarter.

The National Policy on Education has also emphasised the need for making sports and physical education an integral part of the curriculum in schools and colleges. A nationwide infrastructure for physical education, sports and games should be built up into our educational edifice. What the country really needs is a system which can promote an integrated development of body and mind. One of our major weaknesses has been that the schools, colleges and universities have not played their roles effectively in this direction. Most of them lack resources, their infrastructure is inadequate or sub-standard and sports facilities are scarce. Indeed, sports appears to have been placed in the lowest priority in the total scheme of school and college education. The utter neglect of the physical efficiency of our youth in educational institutions and non-availability of resources for sports have been responsible for this sorry state of affairs. It is proposed to identify various problems which impinge upon the sports performance and to deliberate on issues that have significant bearing on mass awakening and motivation for promoting sports and physical education.

Themes

The deliberations at the Seminar will cover the following themes:

1. Sports Infrastructure in Rural and Urban Areas

The discussion will focus on the availability and requirement of sports facilities in different areas—urban and rural, humid and dry, plains and hills. The provision of minimum unit requirements of facilities, depending upon the popularity of various games and sports in the specific areas, will also be discussed.

2. Student Motivation and Incentives

To encourage mass participation of youth in sports activities, it is imperative to motivate them through a chain of incentives like scholarships, bursaries, freeships, and special diet allowances. The feasibility of making sports an academic discipline, preferential treatment in job opportunities and related question of raising the status of physical education would be debated.-

3. Coaching and Competitions

For success in sports competitions, coaching plays a crucial role. The discussions under this theme would focus on the assessment of the present system of coaching for national and international competitions. The question of evolving a core curriculum for physical education, the standardisation of syllabi and its adoption throughout the country will be discussed. The scheduling of the domestic competitions would also be reviewed.

4. Linkages between Sports and General Education

The need for providing effective linkages between sports and general education on the one hand and sports activities in schools with the colleges/universities on the other, cannot be under-estimated. While the schools are primarily responsible for providing the basic inputs to the sports requirements of the higher level institutions, the latter are responsible for improving the efficiency and proficiency in sports in schools by way of providing highly trained instructors and coaches. Ways and means of establishing such linkages would be explored so that the goals envisaged in the New Educational Policy are realised.

5. Norms of Physical Fitness

A minimum level of physical fitness is necessary for any individual to effectively participate in any game or sports and, in the larger context, to be a good all-round student. The methods of improving general health and the question of specifying norms of physical fitness for different age groups of students and for various games will be debated. Modern concepts of sports science will also be discussed.

PROGRAMME

May 9, 1987 (Saturday)	
Registration of Delegates	9.00 A.M.
Inauguration & Exhibition	10.00 A.M.
Session I	11.15 A.M.
Session II	2.30 P.M.
May 10, 1987 (Sunday)	
Session III	9.00 A.M.
Session IV	11.15 A.M.
Session V	2.30 P.M.
Valedictory Function	5.15 P.M.

VENUE

The venue of the seminar will be Mohanlal Sukhadia University, Udaipur.

PARTICIPATION

Delegates from universities, colleges, organisations dealing with sports and physical education, Department of Youth Affairs and Sports, Netaji Subhash National Institute of Sports, Lakshmibai National College of Physical Education and Sports Authority of India are invited to participate in the seminar.

EXHIBITION

An exhibition of literature on sports and physical education such as books, magazines, journals, charts, models and other materials which might present the recent advances in sports science and sports medicine will be organised on the occasion.

The official language of the seminar will be English.

Further details can be had from the Convener.

CONVENER

Shri G.S. Sivia
Deputy Secretary (Sports)
Association of Indian Universities
AIU House, 16 Kotla Marg
New Delhi - 110 002.
Telegram : "ASINDU"
Telephones 3312305, 3313390,
3312429, 3310059.

International Institute for Population Sciences

Govandi Station Road, Deonar, Bombay 400 088

FELLOWSHIPS IN POPULATION STUDIES

Applications are invited on the prescribed forms for the award of 15 FELLOWSHIPS each of Rs. 400/- per month and tenable for a period of one year, for the Certificate and Diploma Courses in Population Studies conducted by the Institute. Applicants seeking admission to the Certificate Course should have good Master's degree in any of the subjects: Statistics, Mathematics, Economics, Sociology, Social Anthropology, Psychology, Geography, preferably with adequate knowledge of statistical methods. Those who have appeared for M.A./M.Sc. examination in any of the above subjects but whose results are not yet announced may also apply. Fellowships for Diploma Course are open only to those who hold the Certificate in Population Studies of the Institute or its equivalent. All the students are required to stay in the Institute's Hostel.

Two fellowships are reserved for Scheduled Caste and Scheduled Tribe candidates. In case suitable candidates are not available, they will be treated as unreserved.

Requests for particulars and application forms may be addressed to the Administrative Officer and should be accompanied by self-addressed envelope, atleast of 25 x 12 cms. with Rs. 1.80 stamp duly affixed. Closing date for the receipt of applications is **May 11, 1987.**

K. Srinivasan
DIRECTOR

INSA BURSARY GRANT SCHEME

The Indian National Science Academy invites applications from individual scientists for the Bursary Grant (non-recurring) which has been initiated by the Academy to provide **one time** supplementary support to individual scientists for carrying out research effectively. The grant must be utilized for the purchase of equipment (if not available in the laboratory), components and accessories, chemicals and other such items concerned for research and/or to organise a small group discussion of professional colleagues on important aspects of research and development, or any other significant activity related to research. Under no circumstances shall the Bursary Grant be used for attending conferences abroad or in India. The Bursary grant will not be periodic or recurring as this is a relatively small amount ranging between Rs. 10,000/- to Rs. 20,000/- and in exceptional cases upto Rs. 40,000/-.

The objectives and scope of the Bursary Scheme will remain dynamic and will be suitably changed to render it more effective based on the experience gained.

Application form for the Bursary grant may be obtained from the Office of the Executive Secretary, Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi - 110002 and may be submitted three months in advance. The applications normally get screened once in three months by a Sub-Committee constituted by the Academy.

Professor Hira Lal Chakrabarty Awards—1987

Applications in prescribed forms are invited from Indian Scientists, below 40 years of age on December 31, 1986 and with Ph.D. Degree for outstanding published work in any branch of Botany for Professor Hira Lal Chakrabarty Awards of Rs. 4,000/- each given by the Indian Science Congress Association. Forms and necessary information are available at the Indian Science Congress Association, 14, Dr. Biresh Guha Street, Calcutta-700017.

Last date of submitting application is **July 15, 1987.**

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

ADDITIONS TO AIU LIBRARY

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Sen, A.K. and Sen, Anima. *Cultural deprivation and mental retardation.* Delhi, Northern Books Centre, 1984. 39p.

Sharma, G.D. and Mridula. *Elite in the making.* Delhi, Association of Indian Universities, 1986. 163p.

Travolta, John. *Staying fit : His complete programme for reshaping your body through weight resistance training and modern dance techniques.* London, Arlington Book (c1984) 253p.

UNESCO and International Association of Universities. *Lifelong education and university resources.* Paris, Author, (c1978) 193p.

————. *New trends and new responsibilities for universities in Latin America.* Paris, Author, 1980. 96p.

Woolford, Robert. *Creating arcade games on the Commodore-64.* London, Interface (c1983) viii, 147p.

Young, Robert. *How to program the Commodore 64* : If you have never programmed a computer before.* London, Interface (c1983) vi, 170p.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

HUMANITIES

Philosophy

1. Balbir Singh. *Hindu ethics : An exposition of the concept of good. D.Litt.* Delhi.
2. Bhandari, Vidya. *Tayata ka darshanik adhyayan.* Ravishankar.
3. Jaydarshitashriji, Sadhvishri. *Philosophy of Sadhana of Jainism.* Bhavnagar.
4. Mehar Singh. *Humanist elements in Gita and Gospel : A study in comparative religion.* Durgavati.
5. Naganathan, Gnanakumaran. *Maya fact or fiction.* Durgavati.
6. Paramjeet Kaur. *Prachya dharm darshanon ke naitik evam alochanatmak adhyayan.* Rohilkhand.
7. Tandon, Rama. *Shri Ramkrishna Vivekananda ke darshanon mein purusharth-vimarsh.* Rohilkhand.

Religion

1. Baidyanath Labh. *Panna: A philosophical analysis with special reference to the Visuddhimagga.* Delhi.
2. Barua, Ranjit Kumar. *King Pasenadi and his reign.* Delhi.
3. Singh, Jai Prasad. *Meditation: A way to enlightenment.* Delhi.
4. Sud, Meena. *Dakshina Bharata mein Buddha Dharma.* Delhi.

Fine Arts

Drawing & Painting

1. Misra, Girish Babu. *Mughal chitron kee vishay vastu mein dharm nirpeksh adharon ka vishleshanatmak adhyayan.* Rohilkhand.

Dance

1. Chakraborty, Padmini. *Bharatiya lokoniritYer pariprakshite Tripurar upaijati ya nritya samiksha.* RBU.

Language & Literature

English

1. Anand, Sudarshan. *Theme and structure in the novels of J.B. Priestley.* Delhi.
2. Aneja, Sudarshan. *Rider Haggardas Novelist and romancer : A critical study.* Rohilkhand.
3. Assar, Harbans Singh. *Poetical miscellanies of the sixteenth century: A critical and historical study.* Gauhati.
4. Damodaran, C.P. *The India of Paul Scott : A critical study of the Raj Quartet.* Gauhati.
5. Massey, Rani. *A critical study of Iris Murdoch as a novelist.* Rohilkhand.
6. Ramachandra, Ragini. *Indian literary criticism: Ancient and modern.* Bangalore.
7. Subba Rao, Gollapudi. *The philosophical background of Wordsworth's nature poetry.* Panjab.

Sanskrit

1. Agnihotri, Rama Shankar. *Loukik Sanskrit sahitya mein akashvani.* HS Gour.
2. Chabra, Ramesh Chandra. *Geet Govinda se prabhavit parvarti Sanskrit geet-kavyon ka sameekshatmak adhyayan.* Devi Ahilya.
3. Chakrabarti, Chandankumar. *Arms and equipments of war in the light of the Indian Epics.* Calcutta.
4. Dharmaranjan, P.K. *A Critical study on Keralodaya Mahakavya of Dr. K.N. Jhuthachan.* Calicut.
5. Dubey, Alpana. *Tapes Vatsaraj natak ka natyashastriya vivechan.* HS Gour.
6. Goswami, Vallabhprasad. *Ling Mahapuran: Ek sameekshatmak adhyayan.* Rohilkhand.
7. Kaushal, Shakti Bala. *Sankhyadarshan kee shastriya sameeksha: Sanskrit Jain granthon ke adhar per.* Rohilkhand.
8. Khem Raj. *Nanak Chandrodaya Mahakavya: A cultural study.* Panjab.
9. Madhupama. *Mahabharat ke akhyan sahitya ka Sanskrit prasidhh roopak sarjana mein yogdan.* Rohilkhand.
10. Mishra, Yugal Kishore. *Asceticism in ancient India.* Bihar.
11. Misra, Nalini Devee. *Yaska's Nirukta: A comprehensive study.* Gauhati.
12. Nippani, Gururaj Krishnacharya. *Vadiraja's Yuktimallika: A critical study.* Karnatak.
13. Pandey, Divya. *Concept of beauty in ancient Sanskrit literature with special reference to the epics, Bhagwat Purana and poetical works of Kalidasa, Bhavbhuti, Bana and Shriharsh.* Panjab.
14. Pathak, Rajendra Prasad. *Brihatrayee ka darshanik adhyayan.* Rohilkhand.
15. Rajni. *Kavyaprakash ke mool srot: Ek adhyayan.* Panjab.
16. Rana, Praveen Singh. *Ancient Indian economy with special reference to vedic literature.* Panjab.
17. Rastogi, Madhu Bala. *Rajshekharkrit 'Vidshalbhajjika' ka sameekshatmak adhyayan.* Rohilkhand.

18. Sharma, Amita. *Contribution of Nilakantha Dikshit to Sanskrit poetry.* Delhi.

19. Sharma, Bhakta Vatsal. *Rigvedic kavya: Sameeksha ke siddhanta. Panjab.*

20. Sharma, Dev Raj. *Four castes in Vedic literature: An analytical study.* Panjab.

21. Sharma, Punita. *Concept of sentence analysis in nyaya philosophy.* Delhi.

22. Sharma, Rishi Ram. *A comparative and critical study of Ratnavali and Chandrakala Natika.* Panjab.

23. Sharma, Shashi Bala. *Tikakar Rajanak Ramkanth Kashmir Shaiv darshan mein.* Jammu.

24. Singh, Surendra Pal. *Madhavacharya praneet Shreeshankar Digvijay Mahakavya ka vivechanatmak adhyayan.* Rohilkhand.

25. Vaishya, Tribhuvan Prasad. *Subhadra Dhananjay evam Tapti-Sanvaran natakon ka alochnatmak adhyayan.* Avadh.

Pali

1. Mohan Datt. *Pali evam Nirgunavadi Sant sahitya mein trisna-vimarsa.* Delhi.

Punjabi

1. Satpal Kaur. *Sant Singh Sekhon de natakan da alochanatmak adhyayan.* Delhi.

Hindi

1. Agarwal, Munish Prakash. *Ashtchhap sahitya mein bhaugolik sthanon ka anusheelan.* Rohilkhand.

2. Bhatt, Yogesh Prahladray. *Hindi-Gujarati ke vakya-vinyas ka tulnatmak adhyayan: Roopantaran-parak swayamsarjak vyakaranik abhigam.* Bhavnagar.

3. Chaturvedi, Jagdish Prasad. *Swatantrayottar Hindi kavita kee Marxvadi sameeksha ka mulyankan.* JNU.

4. Gangwar, Jwala Prasad. *Hindi ekanki ke sandarbh mein Vishnu Prabhakar ka vishesh adhyayan.* Rohilkhand.

5. Gobind Ram. *Rashtriya sanskritik kavyadhara ke sandarbh mein Makhan Lal Chaturvedi tatha Bal Krishna Sharma Naveen ke kavya kee tulna.* Panjab.

6. Gujrathi, Ashok Babulal. *Premchandottar Hindi Kahaniyon mein premtattwa ke swarup ka anusheelan, san* 1975 *tak.* Amravati.

7. Hem Raj. *Reetikal ke sandarbh mein kavi Somnath ke krititva ka adhyayan.* Panjab.

8. Jha, Puran Lal. *Gayaprasad Shukla 'Sanehi': Vyaktitva aur krititva.* Rohilkhand.

9. Kaul, Meena. *Hindi dhwani roopak: Kathya aur shilp.* Rohilkhand.

10. Kumaran Nayar, G. *Historical materialism in Hindi historical novels with special reference to Yashpal, Rahul, Sanskrithyayan and Rangeya Raghav.* Calicut.

11. Laxmi Chand. *Madhyakaleen Hindi bhakti kavya ke pramukh kaviyon dwara prekshepit gram samaj aur sanskriti: Ek anusheelan.* HS Gour.

12. Misra, Shiv Sharan Lal. *Janpad Shahjahanpur ka lok sahitya : Sarvekshan evem vivechan.* Rohilkhand.

13. Nigam, Sadhna. *Hindi ke itihasik upanyason mein sam samyik parivesh.* Delhi.

14. Pandey, Ram Krishna. *Hindi ka pragativadi kavya aur Kedarnath Agrawal kee kavita.* JNU.

15. Pathak, Avdesh Kumar. *Budaun Janpad ke sthan-abhidhanon ka bhasha vaigyanik adhyayan.* Rohilkhand.

16. Pathak, Nanda Vallabh. *Hindi ka vaigyanik katha sahitya.* Rohilkhand.

17. Pawar, Chandra. *Nayee kavita ke sandarbh mein Swargiya Sarveshwar Dayal Saxena ke kavya ka sahityik anusheelan.* Rohilkhand.

18. Pramil Kumari. *Swatantrayottar Hindi kahani: Uplabhadhiyan aur sambhawanayen*, 1947-60. Delhi.

19. Rai, Ram Prakash. *Fanishwarnath Renu ke katha sahitya ka samajshastriya adhyayan.* JNU.

20. Shalini. *Mohan Rakesh ke katha-patron ka manovaigyanik evem sahityik anusheelan.* Rohilkhand.

21. Sharma, Janak Bala. *Lok natya ke sandarbh mein Chhatisgarhi loknatya ka anusheelan.* Ravishankar.

22. Sharma, Kanchan. *Jaishankar Prasad kee kahanion ka shaili vaigyanik adhyayan.* Rohilkhand.

23. Sharma, Satya Prakash. *Khari boli kee lok kathaon mein anushyut kathanak roodhiyon ka anusheelan.* Rohilkhand.

24. Vairagkar, Usha. *Kavya mein faintaoy, rachna, prakriti aur prabhav: Hindi kavya chintan ke sandarbh mein.* Ravishankar.

25. Valsala Devi, K. *Social novels of Dr. Rangeya Raghav.* Kerala

26. Walia, Kiran. *Dinkar aur Bachchan ke kavya mein swachchandata vadi bodh ke swarup: Tulnatmak adhyayan.* Panjab.

Urdu

1. Sabir Husain. *Urdu tehquq aur Maulana Imtiaz Ali Arshi.* Rohilkhand.

Bengali

1. Bandyopadhyay, Debnath. *A comparative study of Jaisi and Alaol in Padmabati. D Litt.* RBU.

2. Das, Arun Kumar. *Sunderbaner lokesahitya-o-loke sanskriti.* RBU.

3. Das, Tapendra Narayan. *Kabi Krittibas-o-Ramakatha. D. Litt.* RBU.

4. Gupta, Nirmal Narayan. *Sri Chaitanya: Govinda Karmakarer dristite. D Litt.* RBU.

5. Hazra, Pratap Ranjan. *Amarendra Ghosh: Jiban-o-sahitya sadhana.* RBU.

6. Khan, Manilal. *Bangla chalit reetir krama vivartan. D Litt.* RBU.

7. Molla Badrul Hasan. *Nabajagaran ebong Bangla upanyas: o prasar, unish satak paryanta.* Calcutta.

8. Saha, Pankaj Kumar. *Bankurha jeler loukik dev devi, pujaparban-o-bratachar.* RBU.

Oriya

1. Mudali, Samar. *Oriya natakare samaj sanskar ekka adhyayana, from* 1877-1947. Sambalpur.

Marathi

1. Pakhmode, Guruprasad Govindrao. *Shri Eknath Maharajanchya abhanggathecha vivechanatmak abhyas.* Nagpur.

Gujarati

1. Mehta, T.L. *Creative writer Jhaverchand Meghani: A critical study.* Saurashtra.

Persian

1. Siddiqui, Anwarjahan Ahmad. *Hajrat Pir Muhammed Shah: His works and vision.* Baroda.

Arabic

1. Abdul Haq. *Contribution of the universities of Northern India to Arabic studies since independence*, 1947. Delhi.

Tamil

1. Soundaravalli, R.M. *Mahavidan Meenakshi Sundaram Pillai in Pillaithamil Noolgalum Kovai Noolgalum.* Madurai.
2. Vythianathan, R. *Tamililakkiyattil cintuppaatalkal.* Kerala.

Malayalam

1. Samuel Kutty, K.L. *The personal element in the Vilapakavyas of Malayalam.* Kerala.

Kannada

1. Gunderao, Lokur Hayavadan. *Vadirajara Kannada Kritigaluondu samalochane.* Karnatak.
2. Patil, Shantkumari Shivsangappa. *Akkamahadevi: Jivan, sahitya vyaktitva pravhavamudre.* Karnatak.

Telugu

1. Annapoorna, K. *Woman in Telugu classical literature, from* 1000 *A.D. to* 1775 *A.D.* Bangalore.
2. Sharma, V. Veeranarayana. *Kanuparti Abhayamatyuni kritula pariseelanamu.* Osmania.

Geography

1. Mahalakshmi, Kolla Bulli. *Geomorphic studies in evaluation of land-scope and resources of Pedda Vagu Basin in Adilabad District, Andhra Pradesh.* Andhra.
2. Mahi Pal. *Krishni-Kali Doab: A study in land use and agricultural geography.* Rohilkhand.
3. Rawal, Lal Bahadur. *The geographical knowledge emerging from works of Kalidasa.* Rohilkhand.
4. Singh, Akoijan Sundar Kumar. *Population of Manipur: A geographical analysis.* Gauhati.
5. Sinha, Indra Deo Prasad. *Population geography of Bhojpur and Rohtas Districts of Bihar.* Magadh.

History

1. Jamal Mohammad, T. *The Gujaratis in Kerala: A study of socio economic interactions*, 1850-1950. Baroda.
2. Jha, Ashlesha. *Dakshin Kaushal ka panduvansh tatha tatkaleen sanskritik itihas.* Durgavati.
3. Krishna, C.S. *Labour movement in Tamil Nadu,* 1918-1933. JNU.
4. Kunhikrishnan, V.V. *Tenancy legislation in Malabar: An historical analysis.* Calicut.
5. Nagarajrao, H. *The development of carnatic music in Karnatak a with special reference to the Wodeyar's of Mysore.* Karnatak.
6. Pandey, Geetanjali Aniruddha. *Social and intellectural trends in colonial India: A study of Premanand.* Baroda.
7. Sen, Ranjit. *Economics of revenue maximization*, 1757-1793 *Bengal: A Case study. D. Litt.* RBU.
8. Shrivastava, Anita. *Satrahveen evam atharahveen sadi mein Bundelkhand ke samajik arthik evem sanskritik jeevan ka adhyayan.* Durgavati.
9. Shrivastava, Shankar. *Hinduism in South-East Asia.* Magadh.

RAVISHANKAR UNIVERSITY

RAIPUR-492 010 (M.P.)

Employment Notification No. 2/87/Admn.

Last Date of receipt of application in the University Office **20-4-1987**.

Applications are invited for appointment to the Post of Director, College Development Council in the University.

1. **Name of the Post**	Director, College Development Council.
2. **No. of Post**	One
3. **Educational Qualification**	First Class **OR** High Second Class Master's Degree. Ph.D. Desirable.
4. **Experience**	Atleast 10 years experience of teaching and/**OR** Educational Administration.
5. **Scale of Pay**	Rs. 1500-60-1800-100-2000-125/2-2500/- plus usual allowances as per rules.
6. **Age**	Above 50 years but not more than 62 years.

Note: The appointment to the post will be on contract for a period of three years.

General

(1) The requirement regarding minimum percentage of marks shall be relaxed upto 5% in the case of Scheduled Caste/Scheduled tribe candidates. Fifteen percent of the posts are reserved for the candidates belonging to scheduled caste and 18% for scheduled tribe candidates. If no candidate belonging to scheduled caste/tribe is found suitable for appointment, candidate belonging to the general category will be considered.

(2) Applications with complete details will be acceptable on plain paper in Seven Copies.

(3) Qualifications etc. as on date of interview will be taken into consideration while making the selection.

(4) Advance increment in the pay scale may also be sanctioned to outstanding candidates.

(5) Applications must reach the Registrar Office on or before **20-4-1987**.

(6) Those who had applied in response to earlier Advertisement Dated 6-1-86 need not apply. Only change in Qualification, Designation, Experience and change of postal address will have to be informed to the Registrar giving reference to their previous application.

Dr. H. N. Shukla
REGISTRAR

SAHA INSTITUTE OF NUCLEAR PHYSICS

Sector-I, Block 'AF', Bidhannagar, Calcutta - 700 064

35th Post M. Sc. Associateship Course (1987-88 Session)

Applications are invited for admission to the one-year Post M.Sc. Associateship Course of the Saha Institute of Nuclear Physics in two streams : (1) Physics; and (2) Bio-Sciences.

Eligibility

(a) **Physics** : Master's Degree in Physics/Applied Mathematics with background in Physics.

(b) **Bio-Sciences** : Master's Degree in Physics/Chemistry with specialisation in any of the following subjects :

Bio-Physics, Bio-Chemistry, Crystallography, Molecular Biology, Physical Chemistry.

Candidates just appearing in their final examination may also apply.

Admission Test

Admission will be on the basis of academic records and performance in the admission test consisting of a written examination and interview which will be held in the second week of July, 1987. The session is likely to commence in August, 1987.

Travelling Allowance

Candidates called for the admission test will be reimbursed return second-class Railway fare from their normal place of residence and will be paid DA for one day only as per the rules of the Institute.

Scholarship & Hostel Accommodation

Selected students will be paid a scholarship of Rs. 1400/- per month for the duration of the course. Hostel accommodation will be available.

Future Prospects

Likely absorption as Research Fellows at Rs. 1500/- per month after satisfactory completion of the course, with possibility of ultimate recruitment in faculty positions in truly exceptional cases.

Candidates doing exceptionally well in the interview and written test will be provided with the opportunity of directly participating in research work leading to Ph.D. degree while studying the Post M.Sc. Course.

How to Apply

For application forms and prospectus, write to :

The Registrar,
SAHA INSTITUTE OF NUCLEAR PHYSICS
Sector I, Block 'AF', Bidhannagar,
Calcutta - 700 064.

Before **15th May, 1987**. Completed application forms must reach the Registrar, SINP by **May 29, 1987.**

D. N. Bhattacharjee
REGISTRAR

CLASSIFIED ADVERTISEMENTS

THE UNIVERSITY OF BURDWAN

Rajbati : Burdwan, WEST BENGAL

Advertisement No. 16/86-87

Dated : March 27, 1987

Applications in the prescribed form are invited for the following posts:

A. Registrar
B. Librarian
C. Secretary for P.G./U.G. Councils
D. Audit and Accounts Officer
E. Programmer for Computer Centre

Scales of Pay

for A & B — Rs. 1500-60-1800-100-2000-125/2-2500/-
for C & D — Rs. 1200-50- 1300-60-1900/-
for E — Rs. 700-40-1100-50-1300/-.

The posts carry dearness and other allowances, and pensionary benefits according to the Statutes of the University.

Educational Qualifications and Experience:

For post indicated at "A"

(a) **Essential**

(i) Uniformly good academic record with a B+Master's Degree or its equivalent.

(ii) At least 15 years' experience in Academic Institutions like University or in an Institute of higher learning of which 5 years must be in high level administration in a University or in an Institute of Post-Graduate Study.

(iii) Age not less than 40 years. Relaxable in the case of exceptionally qualified candidates.

(b) **Desirable**

(i) A Doctorate degree or published research work of merit;

Or

(ii) High level administrative experience in a Government or Quasi-Government Organisation or a good background in administration and management in senior position.

For post indicated at "B"

(a) **Essential**

(i) Uniformly good academic record with a B+Master's Degree in Library Science or a B+Master's Degree followed by a Bachelor's Degree in Library Science.

(ii) At least 10 years' experience of working in Administration/Management position in a Library of a University or an Institute of Post-Graduate Studies.

(iii) Age not less than 40 years. Relaxable in case of exceptionally qualified candidates.

(b) **Desirable**

(i) A Doctorate Degree or published research work of similar merit.

(ii) Knowledge of at least one foreign language (other than English).

For post indicated at "C"

(a) **Essential**

(i) Uniformly good academic record with a B+Master's Degree or its equivalent.

(ii) At least 10 years' experience in a position involving supervision, control and planning of Examinations, Administration of Colleges or in an Institute of Higher Learning or Government or other academic bodies. At least 5 years of the 10 years' experience should be in higher position of high level administration.

(iii) Age not less than 35 years. Relaxable in case of exceptionally qualified candidates.

(b) **Desirable**

(i) A Doctorate Degree or published paper of high standard.

Or

(ii) Experience of at least 10 years in a fairly senior position in any academic Institution like a College or a University or a research organisation.

For the post indicated at "D"

(a) **Essential**

(i) Uniformly good academic record with a B+Master's Degree.

(ii) Experience in Audit and Accounts work for at least 7 years in senior position involving supervision, control and planning and management of Audit and Accounts.

(iii) Master's Degree in Commerce/Business Management will be given preference.

(iv) Age not less than 35 years. Relaxable in the case of exceptionally qualified candidates.

(b) **Desirable**

Membership of the Institute of Cost Accountants and Chartered Accountants of India. The requirement of Master Degree will be waived in case of such candidates.

For the post indicated at "E"

(a) **Essential**

M.E./M.Tech. in Computer Science or B.E./B. Tech./M.Sc. (Physics/Mathematics/Statistics/Chemistry) with two years of experience in programming in Scientific/Business Language.

The choice of the Selection Committee may not necessarily be confined to those who apply formally.

For application form and other information, apply to the Registrar with a self-addressed stamped (Re. 1/-) envelope (9" x 4").

Last date for submission of application with the requisite fee of Rs. 5/- is **April 25, 1987.**

P. Banerjee
REGISTRAR

CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY AND EXAMINATION

Applications are invited from College/University teachers for admission to Correspondence Courses in Evaluation Methodology and Examinations at Basic Level, Intermediate Level and Advanced Level/Special Professional Course. The duration of each of the three courses is six months. A personal 'Contact Programme' for three days is planned for each of the three courses. Universities/Institutions sponsoring candidates can meet the registration/course fees from out of unassigned grants by UGC.

Request for prospectus and application form accompanied by crossed Indian Postal Order for Rs. 10/- drawn in favour of the Secretary, Association of Indian Universities and a self addressed stamped envelope (Rs. 2/-) should reach the undersigned. Last date for receipt of applications is extended to **30th April, 1987** for both sponsored and non-sponsored candidates.

Project Director (Examinations)
Association of Indian Universities,
AIU House, 16 Kotla Marg,
NEW DELHI - 110002.

INDIAN INSTITUTE OF TECHNOLOGY
MADRAS.

Advertisement No. IITM/R/3/87

IIT MADRAS is a higher technological Institute having on going collaborative programmes with several leading technical universities of Federal Republic of Germany, France, USA and Australia. Apart from its regular academic programmes at under-graduate, masteral and doctoral level the Institute is actively engaged in sponsored research and Industrial consultancy.

The Department of Computer Science and Engineering is actively involved in teaching and research in several modern areas of computer science, such as Artificial Intelligence, Fifth Generation Computing, VLSI Design, Computer Networks, Speech Recognition, Algorithm for parallel and VLSI systems, Simulation and Modelling, Microprocessor based system design etc. In particular, the department has major sponsored research projects in Expert Systems, VLSI Design, Computer Networks and Speech Recognition.

The Department has well equipped laboratories for work in the areas of digital circuits, microprocessors, computer systems development, information sciences, speech and vision, CLASS project, system software, etc. There are several mini and micro computer systems available to support the teaching and research activities of the Department.

As a Central facility, the department has also an IBM 370/155 and IPL 4443 main frame systems to cater to the needs of the various departments/Centres/Sections of the Institute. A 4.5 MIPS fourth generation main frame time sharing computer systems with about 100 terminals distributed all over the campus will be installed during this year.

The Institute invites applications for the following positions in the Department of Computer Science and Engineering to take up challenging tasks in the emerging areas of computer science. The pay scales are noted against each post. The approximate gross emoluments given in brackets include HRA at the minimum of pay scale.

1. **Manager** : Rs. 1500-60-1800-100-2000-125/2-2500 (Total : Rs. 3,405/-).

Qualifications

B. Tech. or equivalent with first class or M.Sc. with first class with a minimum of 12 years' relevant experience as indicated below of which 4 years should be in a supervisory capacity.

OR

M. Tech. or equivalent with first class or Ph.D. with a minimum of 10 years' relevant experience as indicated below of which 4 years should be in a supervisory capacity.

Experience

Should involve procurement, installation, development and operations of computer systems. Experience in organizing maintenance of a computer. Familiarity and ability to deal with hardware and software problems. Supervision of the work of a group of computer professionals. The candidate should have a good academic record, as he is expected to participate in academic programmes of the department like teaching and research also.

2. **Assistant Professor:** Rs. 1200-50-1300-60-1900 (Total : Rs. 3,075/-).

Qualifications and Experience

(i) A good academic record with Bachelor's degree in Engineering or Master's Degree in Engineering or Science or Mathematics, and a doctorate degree in Computer Science or in any related areas.

(ii) 5 years' experience in any field of specialisation in Computer Science and Engineering of which 2 years should be in teaching and/or research.

(iii) Published research work of good quality in journals of repute.

(iv) Experience in guiding research.

3. **Lecturer** : Rs. 700-40-1100-50-1600 (Total : Rs. 2,124/-).

Qualifications and Experience

(i) A good academic record with Master's degree in computer science and engineering or Master's degree in engineering which include any field of specialisation in computer science.

(ii) 2 years' industrial/research experience in the relevant field.

OR

Doctorate degree in Science or Mathematics on topics relevant to Computer Science and Engineering.

4. **Senior Scientific Officer Grade II:** Rs. 700-40-900-EB-40-1100-50-1300 (Total: Rs. 2,124/-).

Qualifications and Experience

Master's degree in Computer Science and Engineering or first class Bachelor's degree in Computer Science and Engineering with years' experience OR first class Bachelor's degree in Engineering which includes specialisation in any field of Computer Science and Engineering with 2 years' experience. For candidates with outstanding academic record, experience may be waived.

(a) The post of Lecturer is reserved for SC/ST candidates. If suitable candidates are not available from among the SC/ST, the post will be treated as dereserved.

(b) The post of Senior Scientific Officer Grade II is reserved for SC/ST candidates. If suitable candidates are not available from among SC/ST, the post will be filled by general candidates on temporary basis.

General Information/Conditions/Instructions

(i) Those who have responded to the previous advertisement No. IITM/R/4/86 need not apply again. Their applications will be considered automatically.

(ii) For all posts, experience means, experience gained after Master's degree.

(iii) Wherever doctorate degree is the prescribed qualification, those who have submitted their thesis for the award of Ph.D. degree may also apply, if they otherwise qualify. However, their selection will be provisional and subject to the award of Ph.D. degree.

(iv) The prescribed qualifications are minimum and the mere fact that a candidate possesses the same will not entitle him/her for being called for interview.

(v) The Institute reserves the right to restrict the number of candidates for interview to a reasonable limit on the basis of qualifications and experience higher than the minimum prescribed in the advertisement.

(vi) The Institute also reserves the right of rejecting any or all applications without assigning any reasons therefor.

For application forms, please address the REGISTRAR, INDIAN INSTITUTE OF TECHNOLOGY, MADRAS 600 036 with a self-addressed stamped (Re. 0.90p.) envelope (25 cms x 11 cms). Applicants are requested to indicate clearly the post for which they wish to be considered. Persons in the service of Government establishments and Public Sector Undertakings should apply through proper channel. Indian Nationals abroad may apply on plain paper (in duplicate) with full details of educational qualifications, research experience and names and address of three referees.

Completed applications with a crossed non-refundable current Indian Postal Order of the value of Rs. 7.50 (Rs. 1.90 for SC/ST candidates) drawn in favour of the Institute, payable at IIT Madras P.O. should be sent to the Registrar of the Institute.

The last date for the receipt of completed applications is **April 24, 1987.**

DEAN/ADMINISTRATION

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

ANDHRA PRADESH : HYDERABAD - 500 028

Applications are invited for admission to the following Courses offered by the JNT University, Hyderabad for 1987-88.

S. No	Name of Course	Courses Offered At **
1.	M.S. — Civil, Electrical, Mechanical and Electronics and Communication Engineering.	'C'
2.	Ph.D. — Civil, Electrical, Mechanical, Electronics and Communication Engineering, Applied Mathematics, Appplied Physics, Applied Chemistryand Management Sciences.	A, B, C
3.	***M. Tech. Part-Time 5-Semester Courses**	
	(i) Energy Management	'C'
	(ii) Industrial Engineering & Management	'C'
	(iii) Computer Science	'C'
	(iv) Automation and Controls	'C'
	(v) Advanced Electronics	'C'
	(vi) Geo-Technical Engineering ..	B & C
	(vii) Structural Engineering ..	'A'
	(viii) Electrical Power Systems ..	'A'
	Part-Time 6-Semester Courses	
4.	M.B.A.	'C'
5.	M. Arch.	'C'
6.	M.Sc. (Applied Physics)	'C'
7.	M.Sc. (Applied Chemistry)	'C'
8.	M.Sc. (Applied Mathematics)	'C'

****Centres :**

'A' JNTU COLLEGE OF ENGINEERING : ANANTAPUR - 515 002.
'B' JNTU COLLEGE OF ENGINEERING : KAKINADA - 533 003.
'C' JNTU POST-GRADUATE SCHOOL OF CONTINUING TECHNOLOGICAL EDUCATION : JNT UNIVERSITY : MASAB TANK : HYDERABAD-500 028.

Eligibility for Course 1: Candidates with Bachelor's Degree in the concerned Branch and one year experience and currently working in Scientific Institution/Labs/R&D Organisation/Industrial / Government Departments/Educational Institutions engaged in Scientific and Technical activities are eligible to apply. Admission will be based on the Rank obtained in the Entrance Test to be held on 28.6.1987 followed by an interview on 29.6.1987.

Eligibility for Course 2 : Candidates with a Post-Graduate Degree in the concerned Branch/Specialisation and one year experience and currently working in Scientific Institution/Labs/R & D Organisation/Industrial / Government Departments / Educational Institutions engaged in Scientific and Technical activities are eligible to apply. Admission will be based on a interview.

Eligibility for Course 3 (i) : Bachelor's Degree in Mechanical/Electrical Engineering with two years employment.

Eligibility for Course 3 (ii): Bachelor's Degree in any Branch of Engineering with two years employment as Junior Executive.

Eligibility for Course 3 (iii): Bachelor's Degree in Engineering or M.Sc. with Mathematics/Statistics/Physics as main subject with one year employment.

Eligibility for Course 3 (iv): Bachelor's Degree in Electrical/Electronics and Communication Engineering with one year employment.

Eligibility for Course 3 (v) To 3 (viii): Bachelor's Degree in the concerned Branch of Engineering with one year employment.

Eligibility for Course 4: Bachelor's Degree in any faculty with 2 years employment as Junior Executive.

Eligibility for Course 5: B. Arch. Degree with one year employment.

Eligibility for Course 6: Bachelor's Degree in Science with Physics (main) and Mathematics as one of the subjects with one year employment.

Eligibility for Course 7: Bachelor's Degree in Science with Chemistry (main) with one year employment.

Eligibility for Course 8: Bachelor's Degree in Science or Arts with Applied Mathematics (main) with one year employment.

***Note:** EMPLOYMENT / EXPERIENCE MEANS WORKING IN A REGULAR POST WITH A MINIMUM SCALE OF PAY ON PAR WITH THE REVISED SCALES OF PAY (1986) OF ASSISTANT ENGINEER OF ANDHRA PRADESH GOVERNMENT OR EQUIVALENT THERETO AFTER OBTAINING THE DEGREE IN THE CONCERNED FIELD.

Admissions for Courses 3 to 8 will be based on the merit at the Entrance Test to be conducted on 3rd, 4th and 5th May, 1987 at the Centres where the courses are offered. The minimum strength to conduct the Entrance Test in any course is 20.

Application form and other details can be obtained from the Director, JNTU P G School, Masab Tank, Hyderabad-500 028, A.P., on a requisition mentioning the name of the course, accompanied by a crossed Demand Draft for Rs. 20/- payable at State Bank of Hyderabad, Shantinagar Branch, Hyderabad drawn in favour of "THE REGISTRAR, JNT UNIVERSITY, HYDERABAD" along with a self-addressed envelope (25 cm x 10 cm) bearing stamps worth Rs. 3.50. A separate application should be submtited for each course.

Sale of applications commences on	..3.4.1987
Last date for sale and receipt of applications for Courses 3 to 8	23.4.1987, 5.00 P.M.
Last date for sale and receipt of applications for courses 1 & 2:	1.6.1987, 5.00 P.M.

REGISTRAR

JADAVPUR UNIVERSITY

CALCUTTA - 700 032

Employment Notification No. A2/3/87

Dated : March 12/13 1987

The University invites applications in the prescribed form for the following posts:

Professor/Reader for the department of Food Technology & Biochemical Engineering—Three posts

Scale of Pay : Professor: Rs. 1500-60-1800-100-2000-125/2-2500/-.

Reader : Rs. 1200-50-1300-60-1900/-.

Qualifications for the post of Professor

Essential : An eminent scholar with published work of high quality, actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding Engineer/Technologist with established reputation who has made significant contribution to knowledge.

Desirable : Two year's Industrial experience in the field of specialisation.

Specialisation : Genetic
Engineering & Molecular Genetic —One post
Immunology & Culture —One post
Molecular Biology —One post

N.B.: In the field of specialisation in Genetic Engineering and Molecular Genetic at least five years' research or teaching experience in the subject is essential along with another five years' experience in equivalent subjects.

Qualifications for the Post of Reader

If suitable candidates are not available for the post of Professor, the posts may be considered for Readers with the following qualifications. Applicants are required to indicate if they would like to be considered for the post of Readers.

Essential : Good academic record with a Doctorate's Degree in the field of Genetic Engineering and Molecular Genetic/Immunology and Tissue Culture/Molecular Biology. About 5 year's experience of teaching and/or research and development in the aforesaid field.

Desirable: One year's Industrial experience in the field of specialisation.

Specialisation - Genetic
Engineering & Molecular Genetic —One post
Immunology and Tissue Culture —One post
Molecular Biology —One post

Those who had applied in response to our earlier advertisement for the post of Professor with above specialisation need not apply again. They have to intimate if they would like to be considered for the post of Readers.

Last Date of Receiving Applications is April 14, 1987.

Application forms are obtainable from the University Office during working hours on payment of Rs. 2/- or by post on payment of Rs. 3/- inclusive of postage. Higher initial salary may be given to really deserving candidate. Those who are in employment should submit their applications through proper channel. Choice of Selection Committee will not necessarily be confined to applicants only. Canvassing in any form will disqualify a candidate.

REGISTRAR

REGIONAL RESEARCH LABORATORY, JAMMU
(Council of Scientific and Industrial Research)

Advertisement No. 1/87

Applications are invited on the prescribed form for the following posts in Regional Research Laboratory, Jammu/Srinagar/Palampur:

1. **Scientists 'C'**—Five Posts.

Scale of Pay: Rs. 3000-100-3500-125-4500 (revised scale).

(i) **Qualification & Experience:** Ist class M.Sc. Pharmacology/Ist class M.V.Sc. Pharmacology/ Ist class M. Pharm (Pharmacology)/M.B.B.S. with 6 years research experience in Pharmacology. The candidate should possess evidence of published work. Should provide evidence of leadership and ability to guide a team of research workers.

Job requirement: To Plan, execute and guide work on drug development with particular emphasis on modern pharmacological work on drugs of plants origin and to develop interesting leads up to the level of clinical trial. **Experience relaxable in case of otherwise well qualified candidates.**

(ii) **Qualification & Experience:** Ist class M. Sc. Biochemistry/Microbiology/any of the Bio-sciences with 6 years research experience/Ph.D. in the same subjects with 2 years research experience in recombinant DNA technology. The Genetic Engineering Programme of this Institute at present is mainly in the areas of microbial gene manipulation for hyperproduction of industrially important drugs and chemicals. The candidate is required to have sufficient experience in modern genetic engineering techniques. **Condition of experience is relaxable in case of otherwise well qualified candidates.**

(iii) **Qualification & Experience :** Ist class B.E. in Bio-chemical Engineering/Chemical Engineering with 6 years research experience in the areas of fermentation technology or M.E. with 4 years experience/Ph.D. in Biochemical Engineering/Chemical Engineering with 2 years research experience in fermentation processes. **Desirable:** The candidate should have experience of handling computerised fermentation equipment for data aquisition, analysis and control. Experience in software development for fermentation control would be preferred. The candidate is required to be involved in the process developments in fermentation and scale up studies. **Experience relaxable in case of otherwise well qualified candidates.**

(iv) **Qualification & Experience:** Ist class B.E./B. Tech in Electronics with 6 years research experience or M.E. Electronics with 4 years research experience/Ph.D. in Electronics with 2 years research experience. **Job requirement:** To take care of modern electronics instruments like Electron Microscope, FT-NMR, GCMS, Computers, Microprocessors equipment etc. Experience in the field of integrated circuitory is desirable. Selected candidate will also have to collaborate in development of various technologies where Microprocessors can be used. **Experience relaxable in case of otherwise well qualified candidates.**

(v) **Qualification & Experience:** Ist class B.E./B. Tech. in Computer Science with 6 years experience or M.E. Computer Science with 4 years experience or Ph.D. with 2 years research experience. **Job requirement:** To develop software for various scientific programmes of the laboratory.

2. **Technician**—One Post

Scale of Pay: Rs. 1400-40-1800-EB-50-2300 (revised scale)

Qualification & experience: Matric in Science with diploma/certificate course of medical laboratory technology with 3 years experience in recognise laboratory. Preferable experience of having worked in a diagnostic laboratory attached to a Medical College/Institute/District Hospital. Should have detailed knowledge in laboratory tests of pathological/clinical nature. Preference and higher start can be given to efficient and experienced candidate. **The selected candidate will be placed in Group-II under the New Recruitment and Assessment Scheme of the Laboratory.**

3. **Nurse**—One Post

Scale of Pay: Rs. 1400-40-1800-EB-50-2300 (revised scale)

Qualification & Experience: Matric in Science with diploma of nursing of not less than 3 years with one year experience or equivalent. **Job requirement:** To assist the

Medical Officer in RRL Dispensary. Higher start can be given to efficient and experienced candidate. The **selected candidate will be placed in Group-II under the CSIR New Recruitment and Assessment Scheme of the Laboratory.**

4. **Boiler Assistant** —One Post

Scale of Pay : Rs. 1400-40-1800-EB-50-2300 (revised scale)

Qualification & Experience: Matric with possessing Class II Boilerman certificate from a recognised Institute. The applicant should have practical experience in maintenance and operation of 2 ton/hour and above capacity oil/coal fired boilers. **The selected candidate will be placed in Group II under the CSIR New Recruitment and Assessment Scheme of the laboratory.**

5. **Technical Assistants Gr. VIII**—Two Posts

Scale of Pay : Rs. 1400-40-1800-EB-50-2300 (revised scale)

Qualification & Experience: Ist class B.Sc. degree with Chemistry as main subject. 3 to 4 years laboratory experience in a research Institute. **Job requirement:** The incumbent will be required to assist the Senior Scientists in the laboratory work.

6. **Photographic Assistant Gr. VIII**—One Post

Scale of pay : Rs. 1400-40-1800-EB-50-2300 (revisted scale)

Qualification & Experience : Degree in Science OR Degree in Commercial Art with photography as a subject/3 years diploma in photography and 2 years experience in processing of colour films, making colour prints, handling Video Camera and Shooting Video films. **Job requirement:** To attend to the photography work and Video coverage of the activities of the laboratory.

The above posts are temporary and carry usual allowances admissible under the Central Government rules. Higher initial start may be given to deserving candidates.

Application form can be had (free of cost) form the Administrative Officer, Regional Research Laboratory, Canal Road, Jammu Tawi upto **20-4-1987**. Seperate application should be submitted for each post. Number of advertisement, name of the post applied for and full address in BLOCK LETTERS must be indicated at the top of the request which should be sent together with self addressed envelope of 22 cm x 10 cm for obtaining application form.

Completed application on the prescribed form together with non-refundable application fee of Rs. 8/- (Scheduled Caste Tribe candidates are exempted from payment of application fee) in the form of Crossed Indian Postal Order drawn in favour of Administrative Officer, Regional Research Laboratory, Canal Road, Jammu Tawi, should reach him not **later than 5-5-1987 positively. Services of the incumbents will be transferable anywhere in India.**

Application should be supported by attested copies of the certificate/testimonials relating to educational qualifications/date of birth, experience and original community certificate in respect of Scheduled Caste/Tribe candidates from the appropriate authority.

Application from employees working in Government departments, Public Sector Organisations and Government funded research agencies will be considered only if forwarded through proper channel and with a clear certificate that the applicant will be relieved within one month of receipt of the appointment orders.

Incomplete applicationi n any respect will not be considered under any circumstances.

Canvassing in any form and/or bringing and influence political or otherwise will be treated as a disqualification for the post.

Since it is not possible to call all the candidates for interview, the applications will be shortlisted for the purpose and the decision of a duly constituted screening committee of the Institute will be final in this regard.

Travelling allowance as per rules will be paid to the candidates called for interview.

NO INTERIM ENQUIRIES WILL BE ENTERTAINED.

INTERNATIONAL INSTITUTE FOR POPULATION SCIENCES

GOVANDI STATION ROAD, DEONAR, BOMBAY 400088

Applications are invited for the following posts:

1. **Assistant Librarian**—(One post).
Scale of pay : Rs. 1,640-60-2,600-EB-75-2,900. (Revised).

Qualifications: At least a graduate with a Degree/Diploma in Library Science from an Indian or foreign University with a minimum of three years experience in Library of a leading institution. Age: Not more than 30 years.

2. **Technical Assistant** — (Two posts).
Scale of pay: Rs. 1,400-40-1,800-EB-50-2,300 (Revised).

Qualifications : M.A./M.Sc. degree in Statistics or Mathematics, preferably with experience of working in research institutions, or M.A./M.Sc. degree in other Social Sciences with some training and/or experience in the field of Statistics/Demography. Age : Not more than 30 years.

3. **Stenographer** — (one post).
Scale of pay : Rs. 1,400-40-1,600-50-2,300-EB-60-2,600 (Revised).

Qualifications. Minimum of S.S.C. and possessing speed of 120 w.p.m. in Shorthand and 40 w.p.m. in typing. Experience of about 5 years as Steno-typist in Government or commercial organization. Good command in English desirable. Age: Not more than 30 years.

All the posts carry dearness and other allowances as admissible to Central Government employees of equivalent grade stationed in Bombay. The posts are temporary but are likely to continue. Applications stating age, qualifications, experience, research work and publications, if any, should reach the Administrative Officer latest by **27th April, 1987.**

K. Srinivasan
DIRECTOR

SHIVAJI UNIVERSITY

KOLHAPUR

Dated: 19-3-1987

Applications are invited for the post of Director—Head at University Computer Centre.

Scale : Rs. 1100-50-1600 and other admissible allowances as per rules. (Higher start will be considered to the deserving candidate) (Free residential accommodation will be provided on the University Campus).

Qualifications: (i) Ph.D. in Computer Science/Technology/Electronics with specialisation in Computers and experience in hardware or software OR (ii) Ph.D. in Electronics, Electronics Engineer or Physics or Mathematics with good computing experience. OR (iii) Master's Degree in Computer Science with 3 years minimum experience in computing.

The person appointed will have to undertake the teaching work when the relevant courses will be started in the University.

Candidate already in service of Government/ Semi-Government or Public Sector Undertaking/Organisations should send his application through his present employer.

Applications on plain paper containing particulars, such as Full Name, Address, Date of Birth, Qualifications, Experience alongwith copies of testimonials, Present Position etc. should reach the undersigned on or before **2.5.1987**

Dr. B.P. Sabale
REGISTRAR

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House,
16 Kotla Marg, New Delhi-110002 Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429.
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

University
News

MONDAY, APRIL 13, 1987

Rs. 1.50

T. R. I.

30 ANNUAL CONVOCATION

rof. Maheshwar Dayal, Secretary, Department of Non-Conventional Energy Sources & Chairman, Commission for Additiona Sources of Energy, Govt. of India, delivering the convocation address at the Sri Venkateswara University, Tirupati.

UNIVERSITY OF ROORKEE

ROORKEE-247667

Notice for Admission to M.E., M. Tech., M. Arch., M.Sc., & Post Graduate Diploma Programmes

APPLICATIONS ARE INVITED FOR THE SESSION COMMENCING ON AUGUST 1, 1987 IN THE FOLLOWING PROGRAMMES AT UNIVERSITY OF ROORKEE. MORE DETAILED INFORMATION IS GIVEN IN THE INFORMATION BROCHURE WHICH WILL BE SENT ALONGWITH THE APPLICATION FORM.

MASTER OF ENGINEERING/ARCHITECTURE & PLANNING ($1\frac{1}{2}$ YEARS).

Programmes available in the following disciplines

Departments	
1. Chemical	Advanced Transfer Process/Process Engineering and Plant Design/Industrial Pollution Abatement.
2. Civil	Building Science & Technology/Environmental/Geotechnical/Hydraulic//Structural/Remote Sensing and Photogrammetric/Transportation Engg.
3. Earthquake	Soil Dynamics/Structural Dynamics.
4. Electrical	Measurement & Instrumentation/Power Apparatus & Electric Drives/Power System Engg./System Engg. & Operations Research.
5. Electronics & Communication	Communication Systems/Control & Guidance/Microwave & Radar/Solid State Electronics/Computer Science & Technology/Television Tech.
6. Mechanical & Industrial	Applied Thermoscience/Machine Design/Production Engg./Welding Engineering.
7. Metallurgical	Extractive Met./Physical Met./Industrial Met.
8. Architecture & Planning	Architecture/Urban & Rural Planning.
MASTER OF TECHNOLOGY (3 YEARS)	
9. Earth Sciences	Applied Geology/Applied Geophysics.
MASTER OF SCIENCE (2 YEARS)	
	Programmes are available in the following disciplines
10 Earth-sciences	Applied Geology
11. Mathematics	Applied Mathematics
12. Bio-Sciences	Bio-sciences
13. Chemistry	Chemistry
14. Physics	Physics.
MASTER OF PHILOSOPHY (1 Year)	Mathematics/Physics (Intrumentation/Material Science)
POST-GRADUATE DIPLOMA (1 Year)	Earthquake Engg./Earthquake Tech./Industrial Management/Automatic Computation/Television Technology.
Minimum Qualifications	In the appropriate discipline, a Bachelor's Degree for Engineering/Architecture/Science. Except Master's Degree in case of M. Phil. The details are given in the Prospectus.
Scholarships	Scholarships in M.E. would be available to those who have qualified through GATE on merit.
Hostels	As the University is residential, students have normally to stay in the Hostels.
Applications	The candidates should apply in the prescribed application form with attested copies of the necessary enclosure.

General Informations :

1. On payment of Rs. 10 (Rupees Ten only) by Crossed Postal Order payable to **Registrar, University of Roorkee** for each application form, a circular containing details of the courses eligibility conditions, and the number of seats available for each course can be obtained from the Office of the Assistant Registrar (Academic) University of Roorkee, Roorkee - 247667, in person or by sending a self addressed 26 cm x 17 cm envelope with Rs. 1.80 postage stamps affixed to it.
2. Separate application is to be sent for admission in each Department/Course.

LAST DATE FOR RECEIPT OF COMPLETE APPLICATION FORM : JUNE 15, 1987

UNIVERSITY NEWS

VOL. XXV APRIL 13
No. 15 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor:
SUTINDER SINGH

Intellectual Honesty and Spirit of Inquiry

UNIT
20 APR 1987
ORE

Prof. L.S. Srinath, Director, Indian Institute of Technology, Madras delivered the Ninth Golden Jubilee Memorial Lecture at the Indian Institute of Science, Bangalore on 3 March, 1987. In a very thought provoking oration, Prof. Srinath raises a fundamental issue: Whether the academic community should have a view or express a view on social issues? What are the roles of educational institutions of higher learning like the I.I.Sc.? Prof. Srinath is very positive that as a community of intellectuals, who work in a framework which provides opportunities for independent thinking and rational analysis, we cannot afford to be indifferent. He feels that an indifferent intellectual community is really an ineffective community.

Excerpts:

A few weeks ago, there were serious riotings in Karnataka when Venkataswamy Committee report on the classification of communities into forward and backward classes was announced. Life was seriously disrupted and the Government had to make amends in order to bring normalcy to life. A few sections of the society, which thought that some benefits which they were enjoying so far were being taken away, revolted. Some sections of the society, which were expecting additional benefits realised that these expected benefits were not to come, and hence revolted. Sections of the society which were being denied any benefit, also revolted because of continued frustration. All in all, there was chaos all around. How did the academic community and the intellectuals react to this? Apart from a few 'Letters to the Editor' published in the local newspapers, the academic community, as a group, remained totally silent. The academic community was silent in a peculiar sense. A large number of the members discussed the issues in their homes and with their friends in the evening hours. I was also a party to these discussions. Views were expressed, issues were analysed and once the evening was over, everything was forgotten until the next morning's news in the papers either rekindled the home debate or shifted the attention to some other issue.

Recently, when news started coming out that Pakistan was on the verge of exploding an atomic device with the assistance received from external sources, there were serious discussions in the Lok Sabha, whether, India also should go nuclear or not. Political parties and political leaders expressed their views and opinions and several of them insisted that we too should go nuclear from the defence angle. We all read these in the papers, but how did we react? If I represent as a typical person of a cross-section of the academic community, based on my reactions, I would say, that the academic community was totally indifferent. But, once again, our indifference was in a peculiar sense. A few of us did discuss the issue with our children over breakfast or dinner tables, and may be with one or two of our friends. But, as a community and as a group, we all left it as such, assuming that this was a decision to be taken entirely at the political level. Obviously, the news about Pakistan being on the verge of exploding a nuclear device was from a political source and naturally, our decision to go nuclear or not, was also to be left at the political level.

About a month and a half ago, the Tamil Nadu Government took a decision to introduce prohibition of Arak or local liquor from the first of January. Newspapers speculated that this would give cause for large scale illicit production, which may lead to serious consequences. The fact that such serious occurrences had taken place earlier was known to every one. As expected, immediately after the introduction of prohibition, there were cases of consumption of illicit liquor, resulting in a death toll of nearly forty persons. How did we all react? We all expressed as individuals, our shock, condemned the bootleggers, and hoped they would be caught and punished.

Instances of these types occur very frequently. Some are fairly major issues and some not so major. We are a community of intellectuals, capable of rational thinking. We work in a framework, which provides opportunities for independent thinking and rational analysis. As individuals, we react to these issues, but our reactions are confined to our dining tables and sitting rooms, but not to be expressed or exhibited outside. The paradox is, we realise these are major issues, and the decisions taken on these affect us for a longtime, not only as individuals, but also as the intellectual community and the nation as a whole. But still, as a group, as an intellectual community, we do not react to these critical issues.

My intent to-day is not to take sides, either one way or the other, but to focus attention to the question, whether the academic community should have a view or express a view on such matters. Of course, the views may differ; but they will be based on rational thinking and a certain degree of intellectual honesty. If we, as intellectuals, as rational thinkers, do not react to these, who else will? Are these not really the test cases to see how much we are self-centered and how much we are concerned as a group and as a community? What are the roles of educational institutions of higher learning like this one? This is a premier institute of learning. Opportunities are provided for deliberate development of rational thinking and analytical abilities. But such intellectuals growths cannot be in isolation. They have to be in a living context. The living and dynamic contexts are what take place in our social environment. But the expressions of these situations, in the form of problems, and the solutions adopted, are purely political in nature. They are definitely not intellectual or rational. Do we survive by our indifference to these expressions or by our reactions to modify them by our rational thinking?

Recently, Mr. Brian Oakley, the Director of the Alvey Research Foundation in UK, and a reputed person in the development of the fifth generation computer and artificial intelligence, while giving a lecture at IIT-Madras, was asked a question regarding the involvement of his organisation in the SDI or the star-war programme of the USA. Mr. Oakley agreed that the involvement raised many moral and ethical questions; but the fact of the situation was, that irrespective of his organisation or his Government associating itself or not with the star-war programme, the development of star-war activities would definitely continue. Instead of remaining totally indifferent and becoming a victim of the developments at a later stage, it would be more meaningful to join the programme and try to modify it to make it more acceptable. I think there is a lesson in this to all of us.

The ills of the society are many. We are not separate, but very much a part of the society. But we have gone through a process of education and training on account of which we have a special responsibility to the society. We however, believe, that these responsibilities are to be discharged through scientific and technological contributions only. Towards this end, we take great pains to suitably structure our educational and training systems in order to make them as effective as possible. By this process, we have conditioned ourselves to work within a framework and express our thoughts confined to these boundary limits. We have imposed on ourselves these restrictions in order to avoid facing difficult or embarrassing situations and to avoid the realities. We like to live under the illusion that these ills of the society do not touch us, and we as individuals will be spared and our children will be spared. Each one of us would like to think we are special. We all suffer from a peculiar intellectual dishonesty. A mind that has been trained and which is capable of analysing and resolving complicated mathematical or scientific or technical issues, a mind that urges and trains other minds to acquire the same capability, somehow refuses to get involved in analysing and resolving social issues. It is difficult for us to explain. I am a party to it and you are a party to it.

This crisis in our intellectual honesty appears in two forms; one in our indifference to issues that really matters and affect us in a major way; and two, by our over indulgence in matters and issues which we like to believe are destroying the poor ignorant masses. While, on the one hand, we take on ourselves the responsibility of salvaging and protecting the masses from faiths and beliefs, calling them as totally superstitious, the same rational thinking process is not applied to the more serious social ills that affect all of us much more seriously and even more directly. This intellectual dishonesty, if I may call it so, comes because of the fear of the consequences of fighting the concerned social and political elements, and the hope that I, as an individual, will not suffer so long as I remain silent. To compensate for this intellectual dishonesty and lack of moral courage, we tend to become more vocal in attacking other ills, since apparently, such fears do not exist in attacking such ills. Let me cite an example.

The case is that of the Bangalore Science Forum. Most of you are familiar with this Forum, and our colleagues and friends are associated with it. The remarks that I will be making have nothing personal in relation to the persons involved and I hope they will be taken in the right spirit. This Forum has the motto 'Social Commitment of Scientists' and in its preamble it states that, 'It is not enough if we are good and eminent scientists, but we should be rational, socially relevant and useful. The scientists should be true to their conscience and as a matter of duty should express their free and frank opinions. . . .'. These are really noble words and objectives. But, unfortunately, immediately after such a statement, the appeal issued by the Forum attacks astrology and paranormal claims with such harsh words, one wonders what happened to the spirit of inquiry that the Forum was trying to propagate! If the aim is to destroy the faith in astrology at any cost, even then, the methods adopted by the Forum and the arguments used make them totally ineffective. As a scientist, if one wants to see whether there could be a basis for astrology, then one has to look at the issue from a degree of intellectual honesty and a spirit of inquiry. A tirade of words and opinions do not provide credibility to intellectual honesty. They only make one lose ones arguments. I am not, by any means, supporting astrology or palmistry or any such practices. I am looking at the arguments presented from the angle of intellectual honesty. The logic presented by the Science Forum should be truly scientific and not merely argumentative. In order to understand what science is and what is meant by scientific methods, one can only refer to the classical book by Poincare on this subject. The Science Forum, in support of its arguments against astrology, quotes the opinions of 19 Nobel Laureates, including that of Prof. S. Chandrasekhar. Truly, one must agree that these distinguished scientists and academicians did not receive their Nobel Prizes because of their mere opinions about their scientific topics. They got the prizes after devoting their entire lifetime working and involving themselves in the issues of their primary scientific concern. At this stage, I am reminded of a statement by Sir C.V. Raman, when he was inaugurating the Mechanical Engineering Association of IISc, more than 30 years ago, when I was a student here. That association does not exist any more. Any way, at the end of the inaugural lecture, the members requested Sir C.V. Raman to answer a few questions. At that time, he said, 'If you want me to express my views and opinions on issues and topics on which I have not worked or on which I have not devoted enough time, it is very easy for me to give my opinions. But, if you ask questions on light or acoustics or other branches of physics, on which I have not only worked, but have involved myself in trying to understand, then I will have to hesitate either in responding immediately, or giving an opinion'. Those of us who had heard Sir C.V. Raman, know that he was very much opinionated, and these remarks of his are worth noting. In order to bring out the lack of intellectual honesty and the spirit of inquiry in the arguments presented by the Forum, I must refer to Arthur Koestler's statements in his book entitled 'Sleepwalkers'. This book was much quoted by Dr. S. Chandrasekhar, the Nobel Laureate, whose opinion on astrology was quoted by the Science Forum, in his Golden Jubilee lecture of the Indian Academy of Sciences. As you are aware, the book 'Sleepwalkers' deals with the lives and works of cosmologists like Copernicus, Tycho Brahe, Kepler, Galileo and Newton. It deals with the inquiry into the nature of Nature and an inquiry into the nature of man. More importantly, in the words of Koestler, it deals with the conflict between faith and reason, where, on both sides, symbols have hardened into dogmas, and the common source of inspiration is lost from view. The book brings into sharp focus that the aim is not the conquest of nature, but trying to understand nature. In this process, the twin threads of science and religion, twine and untwine. There exists the unity of the mystic as well as the savant, falling apart and reuniting again. Arthur Koestler, in his Preface, tells that one of his objectives in writing the book was to understand the psychological process of discovery as manifestation of man's creative faculty. He says, that many a time, the knowledge expounded by a seer becomes heart-breakingly obvious through an understanding of nature. These are in the context of Copernicus's and Tycho Brahe's expositions, Johannes Kepler's long periods of observations, Galileo's speculations, and finally, Netwon's principles of mechanics giving a rational explanation to all these. In this context, we may also remind ourselves of one of our great mathematicians, Ramanujam, whose birth centenary we are celebrating this year. Professor Hardy, in his book on Ramanujam, tells of many instances when Ramanujam was able to give out answers, like for example, the sum of a series, without being able to explain how he was able to get the answer. Ramanujam's replies on many occasions were that Goddess Namagiri came to him in his dreams and revealed the answers. It was left to Professor Hardy, to go through a painful process of rational analysis to arrive at the same answers as those given by Ramanujam. This is a typical case of what Arthur Koestler was referring to, when he talked about the seer's expositions and the analysis of a rationalist.

Please allow me to tax your patience a little more. About three years ago, while delivering the Frontier Lecture Series, organised by this Institute as a part of its Platinum Jubilee celebrations, Prof. E. C. G. Sudarshan gave a lecture on the developments in mechanics. His first few sentences formed a beautiful introduction to the subject of mechanics and appealed to me very much. Later on, I came to know from Sudarshan, that these sentences were really those of Professor Mukunda. The substance of the sentences was the following:

> "We are surrounded all around by space. We would not have been interested in this space, if it were completely empty. But it is not. There are bodies in this space and therefore our interest in space. We would not have been interested in these bodies if they were totally inert. But they are not. These bodies interact and hence our interest in these bodies and the positions they occupy in space. . . . .".

Let me follow the same line of argument for a moment.

Let us for a moment imagine that we are looking down on this planet earth from a far away place in space. We observe many features associated with the life on earth, and also the movements of the planets of the solar system. Among these observable things, let us for a moment concentrate our attention on the human beings. A study and observation over a long period of time reveal certain peculiarities and patterns. These patterns create in us an intellectual curiosity demanding closer attention to see what happens to these human beings and why they happen. At the beginning, everything appears random and chaotic. But, as knowledge gets gathered, one might see in order in the chaos and some statistical regularities in the random variables. These orders and these regularities may lead to a pattern, a pattern that deals with man as an individual, his birth, his growth and development, and his death. The question is, should one ignore these as totally nonsense or take some honest interest to see whether there is any meaning in it?

Some of you may recall the lecture given in this hall, three years ago, by the Nobel Laureate, Josephson. His question on that day was, whether mind can think on itself. If an instrument that is used to measure a quantity, interferes with the quantity to be measured, then the measure of the quantity as revealed by the instrument will not be a true measure of the quantity. This is obvious. Similarly, if mind starts to think to find out how the mind works, then the answer you get may not be the true answer because of self-interference. Therefore, Josephson's problem was to find out how the mind can think on itself without interfering with itself. He thought that, if the mind could attain a state called by the Indian Yogis as the superconscious state, separating itself from the self, then it should be possible to obtain some indication of the working of the mind. With this in view, he had come to India, visited temples, talked to many people, and returned to USA. When he told us the object of his visit, a few of us snickered, a few looked at it cynically and the majority remained indifferent. Of course, a few wise ones remarked that this question must have been already resolved and the answer should be available somewhere in our holy literature. Josephson's spirit of inquiry, we could not match. Even the identification of the problem was something beyond us. But our reaction was a typical one.

It is such curiosities and spirit of inquiry coupled with intellectual honesty that have always given rise to developments in science. What were once the revelations of seers have later become scientific principles. I am by no means supporting astrology as being practised or proposed. But, in order to negate astrology as a science, one should adopt scientific methods. Vehement opinions, whether uttered by a Nobel Laureate or not, have never been a part of scientific methods.

Really speaking, I have deviated slightly from my original purpose, though deliberate it was. The original purpose was to raise the subject of intellectual honesty and spirit of inquiry in a social context, and our reactions as a community of intellectuals to incidences that occur in a social plane. Prof. Noam Chomsky, while delivering the 1972 Jawaharlal Nehru Memorial Lecture, made a very strong case in his lecture entitled 'Science and Ideology', that scientists and intellectuals cannot divorce themselves from social issues, just because they are controversial. He quoted quite extensively from the speeches of Jawaharlal Nehru, saying that scientists and intellectuals have a moral responsibility to social issues and problems created particularly by those in authority. My purpose this afternoon was not to question this, but to ask myself how this could be done. We, as individuals, do not have the moral courage to express our opinions openly, because of the fear of the consequences. Each one of us would like to protect our positions and as a result the issues remain unattacked. But we know that there exists a large section of the society in which each individual thinks alike or has the same view on a given problem. So, the question naturally arises whether these persons can come together and express their views. From a practical point of view, this does not appear to be feasible, since on every social issue, formation of an ad-hoc group to present a combined view is not possible. But there exists a solution. Most of us, as professionals, belong to various professional societies, like the Institution of Engineers, Institution of Electronic and Telecommunication Engineering, Academy of Sciences, Chemical Society, etc. If it is felt by any such professional society or organisation that a particular social issue or a problem created by those in authority is going to affect the profession, then that particular society should rise up to the occasion and protest or take necessary steps to counteract the move. In our country, we have a large number of professional societies. Since these societies consist of professionals as members, each society forms a reservoir of intellectual power. One would imagine that such a reservoir would be able to exercise enormous influence in shaping the society or in influencing the decision-making processes of the Government or those in authority. While this appears reasonable, past experiences show that scientific and engineering societies in India have rarely taken any interest in issues that are controversial, even if these issues have a direct bearing on the future of the professionals concerned. Unfortunately, these scientific and technical societies are preoccupied with their membership drives and their own examination systems. For some reason, these societies have not taken upon themselves the responsibility of getting involved or showing concern in issues that are relevant. Take for example, the decision by the ministry in reducing the duration of the master's degree programme in engineering from four semesters to three semesters. None of the professional engineering societies had a view or an opinion to express. The reduction in the duration of the programme was not by a small amount; it was by 25%! Still, neither the professional societies nor the engineering industries expressed their views. This Institute and IIT-Kanpur were the only two academic institutions, as far as I know, disagreed and expressed their unhappiness over the decision of the AICTE. But, as scholarships and financial assistances were given by the Ministry, the decision was accepted without much protest. The same situation occurred when the five year engineering degree programme was reduced to a four year degree programme by the Ministry. Once again, I am not taking sides one way or the other, but to point out the indifference exhibited by the professional societies. While I feel very strongly that professional societies, in addition to conducting seminars, workshops and promoting memberships, should exhibit serious concern in social issues, however controversial they may be, if it felt that decisions taken by those in authority are going to affect the professional community, there is a different view that was expressed by the Nobel Laureate Prof. S. Chandrasekhar, while delivering the Golden Jubilee lecture at the Indian Academy of Sciences. Prof. Chandrasekhar said the following while referring to the Golden Jubilee occasion.

"That the occasion is also precious to me on scientific grounds, derives not only from my being the Fellow of the Academy for all of its fifty years, but equally from the purposes to which this Academy is dedicated. Unlike other national academies, it has not sought nor strived to influence the public policies of the national government, nor has it followed the practice of awarding innumerable prizes, lectureships and medals".

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A Weekly Chronicle of Higher Education

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To me, personally, this is very difficult to accept. To advocate that a reservoir of tremendous intellectual power like the Academy should exhibit deliberate indifference and not even strive to influence those in authority on certain public policies, which may be of great relevance to the professional community, is to nullify the very existence of such an Academy. Becoming ineffective and weak due to continued indifference is an error which most of our professional societies have committed. Recently, when President Reagan of USA, awarded a medal to a person belonging to the Jewish community, who had suffered a great deal in the Nazi concentration camp, the Jewish person said, that he had come to realise, after having lost all his family members in the concentration camp, that the opposite of love was not hatred, but indifference. It was this indifference by the German public and the youth which made Hitler and his associates commit the crimes. The German citizen thought that so long as he or she was not directly a party to the crimes committed, then he or she would not be accused of the crimes. But history has shown that one cannot be absolved on the ground of being indifferent. This, I believe, is of direct interest to us here, when we as individuals and groups of individuals, have not expressed our concern on decisions taken by those in authority due to political or other conveniences. An indifferent intellectual community is really an ineffective community.

Management people today talk much about 'Crisis Management'. The crises that are being discussed are mainly those concerning natural calamities like earthquakes, floods, droughts, etc. In situations of these types, methods to prevent large scale loss of life and property become the problems of concern, and the methods of dealing with such situations are discussed. Situations also occur when social crises like riots, communal disturbances, etc., also take place. At the beginning I cited a few of these. In these situations, one generally talks of preventive measures. A majority of these, are of course, concerned with law and order situations. These social disturbances are the end results, the causes of which are the social issues and the decisions taken by those in authority. My question today was the role of the intellectual community under such circumstances. One aspect is our reactions to such issues after they are created or raised; and I have been discussing so far on this aspect from my own point of view. Whether one agrees with my views or not is not the point, but whether the academic or the intellectual community has a role to play or not was the main question. The second aspect associated with this is whether it is possible to reduce the occurrences of such social crises? I am asking this question once again from the point of the role the academic community has to play. To effectively counteract such undesirable decisions taken by those in authority, the educated community, particularly the professionals, have to be suitably armed. An aspect related to this has been discussed at some length in the subject of social and management cybernetics. As you all know, Cybernetics is the science of communication and control in mechanical, biological, man-machine, and social systems. Since, control is the central theme of cybernetics, it should be possible to effectively apply the cybernetic principles to social problems and issues, in particular to those issues which have a direct relevance to the academic and the intellectual community. In this context, the Law of Requisite Variety as enunciated by Ashby, provides a formal basis to study the controllability aspects of social issues. This law states that "only variety can destroy variety". If we take a biological system as an example, and if the number of modes or distinct types of problems trying to destroy the system is greater than the number of survival or counteracting modes it possess, then the system will, in all likelihood, not survive. In orther words, if the biological system is threatened by distinct diseases trying to destroy it, then the system should have at least n distinct fighting modes in order to survive. Similarly, if the intellectual community has to effectively counteract undesirable decisions taken by those in authority on a variety of social issues, then the community must devise atleast as many distinct counteracting modes as there are the destabilising issues. As examples of these counteracting modes, one may cite: the intellectual as an individual setting the decision straight, or the intellectuals using the institution or the organisation where they work for the same purpose, or the professionals using their respective societies or forums, and so on. Whatever the mode of counteracting may be, indifference to social issues of direct consequence is not a solution. Professor Chomsky in his Jawaharlal Nehru Memorial Lecture, quotes the Harvard psychologist Richard Hernstein, as follows. "... the science of human behaviour has made such impressive progress that it already provides an effective technology of behavioural control. Thus, it is now a mere engineering problem to design a satisfactory culture and overcome social and human problems. We might get on with the task, making effective use of this technology to control all people in the ways in which babies, psychotics, and retardates are now controlled". This statement is interesting and frightening at the same time. Without elaborating this further, I want to touch briefly on an important aspect. This is important to me as a teacher. The question is the following:

Is there a methodology of inculcating this spirit

(*Continued on page 9*)

Experiences in Literary Translation

A Report

K. Krishnakumar*

The Sahitya Akademi organised a National Workshop on Literary Translation in New Delhi from December 15, 1986 to January 9, 1987. About 40 scholars representing seven Indian languages, namely, Bengali, Hindi, Kannada, Punjabi, Tamil, Telugu and Urdu attended the workshop. The participants included not only practising translators, but poets, novelists, literary critics and film script writers as well.

Mr. P.V. Narasimha Rao, Union Minister of Human Resource Development, who inaugurated the workshop, said that mastery over one language is a speciality and mastery over two is a double speciality and as such a good translator is more than a good writer. The Minister regretted that many of the translations available in India are good examples to show how not to translate. He underscored that the New Education Policy gave prime importance to translation. Prof. Indra Nath Choudhuri, Secretary of Sahitya Akademi, said in his welcome address that a good translator could not expect to be commended. If the translator is ignored by the reader, it speaks of the translator's excellence.

Prof. R.N. Srivastava, Director of the workshop, pointed out that the objective of the programme was not to teach translation, but to pool the experiences of the participants. He said that in India we need comparative literature to show that India is one nation despite its multilingual and pluri-cultural milieu. For this, translations are essential. He observed that very few universities offer a course in translation with a patchy syllabus without consistency.

A series of lectures was delivered by distinguished literati during the workshop. Prof. V.K. Gokak, President of Sahitya Akademi, who spoke on translation as transcreation, said that faithfulness to the original and perfect communication of the experience are the two essentials in translation, and the latter more important of the two. It does not matter if the translator has erred in a few phrases, if he has successfully expressed the vision of the poet. Imagery, symbolism, diction, clause, phrase and syntax are of secondary importance. In short, the totality of the original is more important than its parts. Prof. Gokak pointed out that Indian languages have been able to borrow hitherto unknown literary forms such as novel, one act play and short story only by means of translation. He said that anything worthwhile written in one Indian language must be translated into all other 21 Indian languages directly. At present, translation from one Indian language to another usually takes place through English, which is 'trans-translation'. Similarly, translations from French, Spanish, German, Russian etc., should come to Indian languages direct, and not through English.

Dr. Sujit Mukherjee said that the creative writer today needs to read literatures of many languages to enrich himself. Translation facilitates this. He felt that the Latin American writers are fortunate enough to have very good translators, and that accounts for their world-wide recognition. Indian writers often stand rejected by the West owing to the poor quality of translations. To make a bad translation is a disservice to the author. He warned that a highly readable translation could at times be a poor one. Dr. Mukherjee affirmed that a translator is not basically a person who cannot produce creative literature of his own and by translating he enjoys vicarious satisfaction. The major translators in Bengali are a case in point, who are writers in their own right. Mr. S.R. Faruqi, cautioned that before a person attempts to translate a poem of a certain poet, he must have a good idea of the author as a whole. He described a translation as a series of sacrifices and compromises in metre, rhyme, verse, colloquialisms and word order, and all these elements have to contribute to the meaning. Prof. K. Ayyappa Panicker was of the view that no translation is exactly identical with the original. If one accepts the fact that there can be no perfect translation, one can do good translation.

Prof. Ashok R. Kelkar said that the translator must have both literary sensibility and linguistic sensibility. The former is not possible without the latter. He further asserted that knowing the two languages separately is not enough for a good translator. He must know how to coordinate the source language and the target language. He said that if there is unintentional ambiguity in the source text, it is the duty of the translator to resolve it in the translation. But the ambiguity is sometimes deliberately implanted in the source text. In that

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**Professor of English, G.V.N. College, Kovilpatti-*627 702, *Tamil Nadu.*

case, resolving the ambiguity either way would do a disservice to the poet. The translator should, therefore, find a suitable word that can retain both the meanings. He also observed that translations of Tagore suffered because Tagore depended a great deal on the phonetic quality and prosody of the Bengali language, which could hardly be carried over to the other language. The translator's responsibility is far greater in such cases. Prof. Kelkar said that the syntax of Marathi prose has been greatly diversified, thanks to translations into Marathi. Before contact with English, Marathi sentences used to be short with 6 to 8 words. When Dr. Johnson's works were translated into Marathi, Marathi readers learnt to cope with longer sentences. As a result, the Marathi language has now been permanently enriched. The writer of Marathi today is at liberty to use short or long sentences depending upon his needs. He further observed that the syntax of Hindi has gained substantially owing to its contact with English, Marathi and Dravidian languages. The translation of Japanese haiku—a type of Japanese poem with three lines—paved the way for the birth of original Marathi haiku poems. The reader of a literary translation may be expected to put up with footnotes and endnotes. An unusually skilful translator may, however, succeed in merging these with the text, Prof. Kelkar added.

Prof. V.N. Mishra, Vice-Chancellor of Kashi Vidyapith, said that there are certain understatements in a particular language which are perfectly comprehensible to the reader of that language. But for a foreign reader, they need to be elaborated. He said that the translator must pick the message first and then the struoture. On the other hand, if translation was done sentence by sentence, it would be a poor work. Prof. Birendra Kumar Bhattacharya, Vice-President of Sahitya Akademi, obsesved that the objective of literary translation in India should be two-fold; it should enrich all literatures and it should help raise the consciousness of the common man. Prof. Shiv K. Kumar noted that the first mistake of an inept translator is his unwillingness to leave anything from the original. He observed that when the translator has the good fortune of working in close collaboration with the author, there is a possibility of great success. Prof. Kumar said that there is immense scope abroad for Indian literature, if made available in English. He recalled how young Americans repeatedly saw the film *Gandhi* with great enthusiasm. Dr. Amresh Datta said that when a work is not translated directly from the original language but through English, intellectual honesty demands that this fact is mentioned. Unfortunately, some translators carefully omit this information. He added that a translator should be both involved in and detached from the original.

Prof. Ram Chandra Sharma said that a translator should function like a stabilizer—stepping down the emotions while translating from Indian languages to English and stepping up while translating in the opposite direction. Dr. Nagendra warned that translating an idiom literally from the source language to the target language would be dangerous. When a corresponding idiom is not available in the target language, the best thing is to give the meaning. Dr. D.P. Pattanayak, Director of Central Institute of Indian Languages, said that translation between Indian languages poses different problems from translating from an Indian language to English. He said that the cliche that a faithful translation is seldom beautiful and vice versa need not be taken seriously.

Prof. P. Lal, introduced a concept called transcorruption, by which he meant saying things deliberately which are not in the original. Prof. P. Talgeri of Jawaharlal Nehru University pointed out that no educated German reads a book in any language other than German, since any worthwhile book published anywhere in the world is rendered into German in a matter of two months. World's all good films are dubbed in German. The same is the case in France too. The language of administration, law, etc. is by its very nature rigid, clear and unambiguous. But the language of poetry can be equivocal. The translator has to come to terms with the latter, Prof. Talgeri said. He also felt that translated works are read more by the elite and students than by the masses. These readers have essentially acquired certain prejudices about the culture of the source literature. The translator should keep this in mind. All the same, a blind adherence to the above norm may result in absurd renderings.

Prof. S.K. Verma, Director of Central Institute of English and Foreign languages, said that, contrary to popular belief, translation has a great role to play in second language teaching. When a person sets out to translate from an Indian language into English, he has to decide for himself whether his audience of English readers in India or abroad. This decision would considerably alter the texture of the translation.

Prof. Verma wanted a recommendation to be made to the UGC that a good translation should be considered eligible for a research degree—as in many other countries.

Prof. R.N. Srivastava, the Director of the workshop, said that a translator does not translate the theme of the poem, but the poetic experience. From the poetic experience, the reader may capture the theme of the poem, but not vice versa. He said that 'the eye of a needle' is variously translated into several Indian languages as face, nostril, mouth, ear and hole. If so much difference exists between cognate languages, problems in translating between disparate languages can well be imagined. He observed that the persons best suited to evaluate the quality of a translation are those who do not need the translation—persons with a sound knowledge of both the languages.

The participants were sharply divided over the question as to whether the style of the original author has to be retained or the translator's style has to prevail. Some felt that the style being part of the work, should be retained as far as possible. As Prof. R.S. Gupta saw little point in translating T.S. Eliot, if there is nothing 'Eliotic' about the translation. Dr. Mohammed Zaman Azurdah, however, felt that it would be impossible to maintain the author's style. Dr. Ajit Khullar was of the view that the whole question was dependent upon the particular work in hand. In some works, the content is so important that any style may serve the purpose. But in some others, the intellectual content is not so significant as its style. In such a case, the translator, should try to adopt the original style.

Dr. Azurdah pleaded that all libraries should have a separate section for translated works. He further requested the Sahitya Akademi to institute awards for translations. □

Intellectual Honesty and Spirit of Inquiry

(*Continued from page 6*)

of inquiry, intellectual honesty and moral courage among our pupils? I have participated along with my colleagues in devising curricula both at the school level and at the degree level, but no where did we make a deliberate attempt to promote either the spirit of inquiry or moral courage. To be honest, these never entered into our discussions. I realise that as soon as I utter these words, questions come to our minds asking whether USA does it, or UK does it or Germany does it. Frankly, I do not care whether these countries do it or not, but when we read and hear about the faculty members in UCLA—Berkeley led by Professor Kelly or the singer Joan Bauz protesting against the Vietnam war and the famine in Ethiopia; or the protest marches by the academicians in UK against NATO alliance; or the men and women in Germany protesting against nuclear power stations, we feel that we lack something in our educational and training processes. First, I thought that these traits, that is, the spirit of inquiry, moral courage and intellectual honesty, are qualities to be acquired only outside the class-rooms. This was based on the existing circumstances. To-day, when the formal training and educational facilities are limited and the demand for these are very high, the tendency is to go for mass education, increasing the student strength in a class. As a consequence, and also due to various other reasons, the only method of evaluating a student is through a mass examination system, which we call as a common examination in the name of standardisation. The reputation of an institution therefore depends on the number of students who get through these common examinations and what ranks went to which school. In order to safeguard their interests, the schools try to pack the class hours with as much information transmission processes as possible. There is no time available for discussions or idea transactions between the teacher and the student.

Unfortunately, this situation is not likely to change in the near future. Common or national or state-level examinations will continue for several years and the class hours will tend to continue to be devoted to information transmissions only. This practice has to change. A deliberate attempt will have to be made to introduce into the system at least a limited amount of time, where interaction between the teacher and the taught, in the tradition of Gurukula style, takes place. In these hours the student should be encouraged to express his or her views and opinions on social issues. Discussions and dialogues should be encouraged in the style of Socrates. Our educational system today completely lacks this. Unfortunately, in today's current academic emphasis, it is fashionable to be an intellectual snob at the expense of social responsibility, because such teachers find support and justification among fellow intellectuals.

The tragedy of the Indian educational system is not that a large number of students drop out of the school, or that excellence among the academically talented is ignored. Both are misfortunes of course. But, the tragedy is that we as intellectuals have not seen fit to develop ideals for ourselves. What ideals we have belong to our ancient past which we are trying to destroy, and what ideals we try to borrow and imitate are totally alien to us. On both accounts, we have become irrelevant to the society, and this is the reason why those in authority can afford to ignore us. □

THE INDIAN PATH

"Increasing population, expanding urbanisation and rapid industrialisation have created a number of economic and social problems. The question arises as to the line of development we should follow. We must follow the Indian Path—which is suitable to our special circumstances, our culture, our society, our diversity, our natural resources, our vastness, our geography, the needs of our people, the distribution of our population," observed Prof. Maheshwar Dayal, Secretary, Department of Non-Conventional Energy Sources and Chairman, Commission for Additional Sources of Energy, Government of India. Prof. Dayal was delivering the Convocation Address at the 30th Annual Convocation of Sri Venkateswara University, Tirupati on 21st February, 1987. Excerpts:

Convocation

Vivekananda was one of the great forebearers of modern renaissance in India based on the Indian path, which preached universal attitudes, the oneness of all humanity and humanism. As Ranganathananda has said recently, Vivekananda preached to "our people the message of a practical Vedanta, of spiritual humanism, consisting of a love of God, flowing into a love and service of man, irrespective of caste or sex or communal differences, and tender that service in a spirit of reverence and friendliness seeing the same divinity in all of them." Vivekananda in his lecture on Vedanta in Lahore in 1897 also exhorted Indian youth to "raise once more that mighty banner of 'Advaita' (philosophy and spirituality of non-separateness), for on no other ground can you have that wonderful love until you see that the same Lord is present everywhere. Unfair that banner of love". The vision and the ideal given by Vivekananda was 'Atmano moksartham jagat hitaya ca—for the spiritual liberation of oneself and for the welfare of the world.' This ideal unifies the spiritual heights of mysticism and the man-ward flow of humanism; it unifies the sacred and the secular, man's inner life and man's outer life.

Ranganathananda points out that "Vivekananda's philosophy and spirituality of service cuts across all communal, caste and other differences, and shines as a universal spiritual religion or philosophy of life, acceptable not only to all believers but to all atheists and agnostics as well. This universality arises from its stress on character, on the humanist passion, and on lived spiritual experience, and not on mere belief and dogma. The Mahabharata conveys this message in a verse giving the teaching of a merchant by name Tuladhara to a Brahmin ascetic by name Jajali (12.254.9):

Sarvesam yah suhrnnityam,
Sarvesam ca hite ratah:
Karmana manasa vaca
sa dharmam veda jajali.

'The person knows dharma, O Jajali, who is always the friend of all people, and who is engaged in ensuring the welfare of all people through action, thought and speech.' Jawaharlal Nehru wrote in his Discovery of India:

> "Rooted in the past, and full of pride in India's heritage, Vivekananda was yet modern in his approach to life's problems, and was a kind of bridge between the past of India and her present."

These concepts are particularly relevant when we are considering today the development of our own country and of the world as a whole at the threshold of a new century. Inevitably, we need in some respects change and modernization to meet the tasks and challenges of today. But to quote Jawaharlal Nehru again:

> "Change and modernity do not necessarily mean breaking with national experience. What is needed is a correct understanding of the meaning of tradition. What we regard as tradition today is itself the product of a continuous evolution. In our religion we have had reformers and rebels challenging earlier beliefs and thus changing accepted values. This is an example of what I mean when I say that tradition involves movement. Tradition is not static; it does not mean being caught in the past. Tradition can also be movement. Only that society can be alive which alone absorbs new challenges and ideas and refuses to let old prejudices and the weight of the past inhibit its attitude and direction. And to be creatively alive, society must mould the future out of its own experience. It must

recognise the difference between mere imitation and assimilation. You cannot be a gardener if you collect only potted plants."

The concepts of change and modernization, according to the Indian path, can also draw inspiration from the Bhagwad Gita which the philosopher statesman Radhakrishnan has described as a valuable aid for the understanding of the supreme ends of life. Radhakrishnan pointed out that "every scripture has two sides, one temporary and perishable, belonging to the ideas of the people of the period and the country in which it is produced and the other eternal and imperishable, and applicable to all ages and countries. The intellectual expression and psychological idiom are the products of time, while the permanent truths are capable of being lived and seen by a higher than intellectual vision at all times. The vitality of a classic consists in its power to produce from time to time men who confirm and correct from their own experience, truths enunciated in it. The commentators speak to us from experience and express in a new form, a form relevant to their age and responsive to its needs, the ancient wisdom of the scriptures. All great doctrine, as it is repeated in the course of centuries, is coloured by the reflections of the age in which it appears and bears the imprint of the individual who restates it. Our times are different; our habits of thoughts, the mental background to which we relate our experience, are not quite the same as those of the classical commentators. The chief problem facing us today is the reconciliation of mankind. The Gita is specially suited for the purpose, as it attempts to reconcile varied and apparently antithertical forms of the religious consciousness and emphasises the root conceptions of religion which are neither ancient nor modern, but eternal and belong to the very flesh of humanity, past, present and future. History poses our problems and if we restate old principles in new ways, it is not because we will to do so but because we must. Such a restatement of the truths of eternity in the accents of our time is the only way in which a great scripture can be of living value to mankind."

The Gita teaches us the importance of the path of knowledge 'Gyana' and of action 'Karma'. Different persons can follow the two paths with different emphasis, depending on their own personal make up. Modern psychologists also point to two basic types of people, namely, those whose natural tendency is to explore the inner life of the spirit and those whose natural inclination is towards work in the outer world. We have the yoga of knowledge for those whose inner being is more inclined towards spiritual contemplation and action for those with love for work and movement. But this distinction is not ultimate for all men are in different degrees both introvert and extrovert. According to the Gita, the two paths of knowledge and action are not exclusive but complementary.

> 'dvav imav atha panthanau yasmin vedah pratisthitah pravrttilaksano dharmah nivrttis ca vibhasitah'

Such are the two modes supported by the Vedas, the activist path and the knowledge path. The two modes of life are of equal value. The third great inspiration which can be distilled from the Indian tradition is the accent placed on service. Krishna is himself reported to have said that he is present in every human being. Therefore, service to men becomes also service to God. The importance and ideals of service to fellow men and thus to society have been accordingly repeatedly stressed in India and are an essential part of the Indian path.

Sri Venkateswara University
Highlights

1. **9058 candidates including 77 Ph.D. scholars awarded degrees in various disciplines at the thirtieth convocation.**
2. **The number of affiliated colleges rose to 111 during the year. Amongst new colleges affiliated are a Law College, a College of Physical Education and a College of Education.**
3. **Introduced post-graduate course in Mathematics through correspondence from the academic year 1986-87.**
4. **A Film Study Centre set up to screen educational films and cassettes.**
5. **The following centres are proposed to be set up during the 7th Plan.**
   1. **Centre of Non-Conventional Energy Sources**
   2. **Centre for Environmental Studies**
   3. **Centre for Foreign Languages**
   4. **Centre for Extension**
   5. **Centre for Linguistics**

This deep spiritual and philosophical wisdom is of particular relevance in our centres of learning and in our univerities where knowledge and work must go together. The pursuit of gaining knowledge through study and research, disseminating this knowledge to the younger and the seekers of more knowledge, and also applying this knowledge in action for the service of our fellow men—all these are exciting activities for all individuals and groups and especially our universities and other educational institutions. They are very relevant today, when developments in science and technology have brought about an explosion in the rate of generation of new knowledge and techniques. If we approach the problems of today and tomorrow in the right spirit, this very explosion can be harnessed to apply science and technology for the continued betterment of mankind—not only betterment of its material conditions, but of its total quality of life.

As we move towards the close of a century and the dawn of another, the world seems to stand at crossroads. An analysis of the global scenario indicates that increasing populations, expanding urbanization, and rapid industrialization have created a number of economic and social problems. Inadequate supply of energy, unemployment, pollution of land, air and water, food shortages, deforestation and a host of others, are causes of major concern. This state of affairs could be tolerated up to a certain point of time; but now the situation has degenerated to such an extent that any further delay in reversing certain trends will not only prove risky but rather disastrous.

At this juncture, the question arises as to the line of development we should follow. What path may we tread, what sort of planning may we introduce which may help in resolving the multiple crises which we face? This calls for a critical review of the past, present and future so as to pick up the good and avoid the pitfalls. One thing is quite certain that success lies only in development of an integrated holistic approach; whenever we take an isolated, disintegrated and biased approach, we do not make adequate progress. The other point which is equally certain is that the path we must follow is the Indian path—which is suitable to *India's* special circumstances, our culture, our society, our diversity, our natural resources, our vastness, our geography, the needs of our people, the distribution of our population. No outside model is quite suitable, though we must have the knowledge—uptodate and continuous—of all experiences, so that we can take whatever is of value to India in our own way.

Indian universities in the past achieved great heights because they believed in the synthesis of various faculties and disciplines—art, philosophy, culture, science, astronomy, physical and metaphysical studies. There was a harmonious blend of mind and body, morality and economic growth, ethics and mundane living. There was a high degree of selflessness, spirit of cooperation, patience and humility, simple living and high thinking. These moral values and virtualities made life devoid of tensions and the pursuit of learning was an enjoyable and absorbing activity. They believed in naturalism and shunned artificialism. They found answers to every problem in nature. The universities played a significant role in the spread and diffusion of this culture.

Then came the period of slavery and loss of independence. There were a number of changes in the administrative and policy framework so as to suit the needs of the foreign rulers. Radical changes were brought about in the system of education, because it was strongly realised that their success lay only in making a departure from ethical and spiritual values. Books were introduced which made education more materialistic and mundane. Wordly pleasure became the end-all of all human pursuits. Realizing this trend of degeneration, an all-out effort was made by our national leaders to achieve Independence. 15 August, 1947 dawned as a red letter day in the history of India.

Then came new challenges—new tasks of national reconstruction. Seven 5-year plans have been launched so far which have resulted in significant progress on all fronts—agriculture, transport, communication, industries, education and social services. However, millions of our people are still living in conditions of want and poverty. We have to work to improve this not only for today but for the future. There is scope for our citizens, especially those privileged like us to have been at universities and other centres of education, to apply the three great yogas taught by the Indian traditions—knowledge (Gyana), action (Karma) and service (Seva).

Economic development of a country is often considered as synonymous with aggregate economic growth, but this is now widely recognized to be a fallacy. We have to be concerned not only with the size of the Gross Domestic Product but with its composition and the distribution of benefits. This calls for a critical analysis of development policies in terms of their impact and socio-economic gains. This is even more important as we have earmarked "Eradication of Poverty" as a major target of our national programmes of development. The fact that 85% of our population lives in rural areas emphasizes the need to develop strategies which are consistent with the socio-economic conditions of this segment of the society.

Energy is one area which is basic to all these considerations. This is also an area which can draw exceptional inspiration from the philosophical and cultural past while at the same time utilizing the most modern scientific and technical know-how. In so far as the past is concerned, energy has occupied a special place in the thinking of the ancient Indian philosophers. Vedic literature underlines Shakiti or Energy as the base of the universe. According to Sir Woodroff, Shakti Vedanta teaches that:

> "It is energy which is the reality",
> "The universe is energy" and
> "Energy is conscience."

Modern physics through the theory of relativity has also shown the inter-connection between mass and energy, a concept which is being put to practical use today in numerous applications of modern physics, such as nuclear power and high energy electronics. This concept was close in many ways to Indian metaphysics, which mentions energy as the basic reality that can be condensed into matter and the latter back into energy. Energy has also been considered as providing a link between man and the universe. Primordial energy has also been equated with the conscience—space-time continuum which has also been analysed by the modern French physicist Jean Charon. More and more profoundly, philosophical and biological researches tend to prove a real unity which presides over the organization of man and the universe. The Oracle of Delphi said according to classical European tradition "Man, know yourself and you will know the universe and the gods." Recently, a well known modern cardiologist, Dr. Therese Brosse, has further analysed the links between human consciousness and energy.

Apart from this physical and metaphysical background, energy has always been a factor of basic practical need and use for every aspect of human society. Even for mundane day-to-day living, we need energy not only for most basic needs like cooking but also to provide light and motive power. Since the industrial revolution we have been increasingly using the fossil fuels for our energy needs in a manner which is now causing increasing pollution of the environment and over-centralization of activity and power. Apart from this, the fossil sources are in any case limited on the planet earth and in some cases like oil are nearing extinction. It is thus very important for the world as a whole to move increasingly towards utilization of renewable sources of energy. For India, this is particularly appropriate, as it lends itself ideally to link with the Indian thinking in favour of harmony with nature. One of the sayings of the Vedic period is: "Let the world focus its constant attention at the centre of the planetary system where the Sun, the supreme power of the universe, resides."

Fortunately, this is possible today by harnessing the energy of the Sun using most modern scientific principles, in the several disciplines of physics, biology, chemistry and the engineering sciences among others. This path is particularly well suited to India because of the widespread availability of renewable energy sources such as the sun, animal and vegetable biomass, wind, water and the oceans. Furthermore, these sources are available in a distributed way in our villages and by harnessing local renewable energy sources the village people can derive direct benefit in a perennial and decentralized manner. These can be used to supply not only cooking and heat energy needs but also electric power in large quantities. Not only through the direct use of solar energy by modern techniques but also the indirect harvesting of the sun from biomass, namely, through the photosynthetic process of nature, solar energy can be used today on a large scale. The biomass programme offers a direct means to address the environment issue also. The content of carbon dioxide in the atmosphere has been increasing significantly during the last decade. A proper analysis of the energy-environment interface shows that recourse to renewable energy can provide a practical down-to-earth solution to the population problem, which may threaten the very survival of mankind. When dealing with pollution and the environment, we cannot adopt a path of total inactivity on the grounds of not wanting to disturb the environment. In a way every action does cause a perturbation in the surroundings and we *have* to take those actions which will remove poverty. As Indria Gandhi rightly said poverty itself is a big pollution. However, use of renewable energy sources can precisely meet both objectives—economic development for removal of poverty at the grassroots while reducing pollution and preserving the ecology.

It is sometimes incorrectly mentioned that renewable energy sources are very costly. In actual fact, the bioenergy systems can be shown to be cheaper even today than fossil fuel sources in very large parts of the country where the biomass sources are available or can be grown. The energy-plantation-cum-power programme (EPP), which I suggested in 1984, can offer a combined holistic approach for the production as well as utilization of biomass on arid lands for meeting a variety of local energy needs, including electric power. Wind energy has also been found to be competitive with conventional electric power wherever diesel has to be used and where winds are available, such as in our coastal and some hilly areas. It is also competitive with local-based power in many areas far from the coalfields if all the associated costs of transmission and distribution, coal mining and coal transportation are taken into account. Solar energy for several heat applications can also be shown to be competitive with the conventional energy uses. Even solar photovoltacis for small electrical uses can be shown to compete in remote areas like Ladakh, Mizoram and several villages at distances more than 15 to 20 kilometres from the grid where power is required in small quantities. The developments made in India in these areas during the last two years have amply shown the applicability, advantages as well as economic competitivenss of several of these technologies.

The scope however is enormous and we have only started a couple of years ago. A vast task awaits us, which requires the commitment of resources, training of manpower, research and development, extension of manufacturing infrastructure. For all this, adequate supply of trained personnel will be needed. The role of educational institutions will, therefore, be very important. These newer areas will also give an opportunity to apply newer approaches to education which build up in the students not only collection of memorised facts, but a capacity to imbibe learning and to create and innovate. The newer methodology would also make the students more aware of themselves and their surroundings, of technology and the environment. Finally, the newer education will, I trust, give much greater emphasis than hitherto on ethical values, on the need for honesty, consideration for others, service to the nation, and the unity and integrity of the country. These are all part of the Indian path. One of the values which perhaps we need to inculcate in a much greater measure is the importance of working together, of teamwork. This has been a weak point of many Indian projects, programmes and institutions, as well as of the national scene in several respects. Working together is needed not only among persons, but among organizations and departments. A dovetailing of various programmes at the grassroots implementation level, along with inputs from the development of locally available renewable energy sources, could bring about more rapid transformation and improvement in the lives of hundreds of millions of our countrymen. Instead of working in watertight compartments, departmentally and institutionally, we could get quicker results through harmonizing and applying the various financial allocations in different sectors to meeting common objectives. Thus, renewable energy systems help the energy, fertiliser, forestry, environment, rural development, women's welfare and other sectors. Even if a small fraction of the funds given to these sectors is earmarked for renewable energy utilization, this area could grow rapidly and all these sectors would also be benefited.

In a country with the diversity and differences of India, there has to be a multi-model and a multi-agency approach in the diffusion of new technologies and ideas. This calls for a greater role of all those agencies/organizations which have a direct link with people at the grass-root level. Universities, through their locational benefits/advantages, can make significant contributions at the microlevel situations also. A time has come when organized institutions will have to develop greater linkages with their surroundings, both physical and biological. India is a vast country with a proud heritage, bountiful natural resources and vast and talented manpower potential. We can find solutions to all our problems, natural and social. These solutions cannot come from outside, though knowledge and equipment could come from outside to supplement what must overwhelmingly be our own efforts. The answer lies only in choosing the "Indian Path," the path of the Sun.

CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY AND EXAMINATION

Applications are invited from College/University teachers for admission to Correspondence Courses in Evaluation Methodology and Examinations at Basic Level, Intermediate Level and Advanced Level/Special Professional Course. The duration of each of the three courses is six months. A personal 'Contact Programme' for three days is planned for each of the three courses. Universities/Institutions sponsoring candidates can meet the registration/course fees from out of unassigned grants by UGC.

Request for prospectus and application form accompanied by crossed Indian Postal Order for Rs. 10/- drawn in favour of the Secretary, Association of Indian Universities and a self addressed stamped envelope (Rs. 2/-) should reach the undersigned. Last date for receipt of applications is extended to **30th April, 1987** for both sponsored and non-sponsored candidates.

Project Director (Examinations)
Association of Indian Universities,
AIU House, 16 Kotla Marg,
NEW DELHI - 110002.

Entrepreneurship in Engineering Studies

A conference on "Introduction of Entrepreneurship as a Subject in the Syllabus of the Engineering Studies" was held on 19 February, 1987 at the Institute of Engineering and Technology, Lucknow. The conference was organised by the Council of Science and Technology, U.P. Govt., on behalf of National Science and Technology Entrepreneurship Development Board. The conference was attended by Principals/Directors of all the Engineering Colleges/Institutes of the State of Uttar Pradesh and representatives of CST, Director of Industries, DST, NSTEDB, IED and Technical Education Deptt. of U.P. Govt.

The following recommendations emerged out of the deliberations of the conference:

(1) The conference commended the suggestion of the task force on introduction of entrepreneurship in the syllabus of the engineering studies held at the National Institute for Training in Industrial Engineering (NITIE), Bombay on 27-28, April, 1985 and that at engineering colleges, entrepreneurship awareness camps of 2-3 days duration followed by courses at 2nd, 3rd and 4th years respectively of engineering degree programme be introduced in each of the engineering colleges of the State.

(2) Each engineering institution of the State may design appropriate courses for their institutions on entrepreneurship and get them processed through the respective boards of studies and faculties for implementation.

(3) As final year project work, students of the engineering colleges may be assigned preparation of detailed project report for establishing an industry.

(4) The course work as well as the project work may be followed by an EDP training programme which is normally supported by the government agencies and this training period be utilised to get the project proposal finalised in all respects so that they are given a final shape which will be acceptable to all the agencies which are involved in the promotion of industrial development.

(5) Training programmes may be organised for the faculty to develop appreciation of entrepreneurship.

(6) Entrepreneurship activities, being a deviation from the routine activities, need additional administative, financial, technical and faculty support. Each institute may prepare proposals for the required infra-structural facilities, which may be coordinated by a central agency, and submit the same to the Department of Science and Technology, Ministry of Human Resource Development (Govt. of India) and Govt. of U.P. for necessary approval and release of grants.

(7) A central agency may be constituted by the Government of U.P. to coordinate the proposals of the individual institutions and take up follow up action. It may comprise one representative of the Council of Science and Technology, U.P. Govt., one representative of the National Science and Technology Entrepreneurship Development Board, and two representatives of the participating Engineering Institute/Colleges of the State.

(8) Entrepreneurs trained under this programme be extended facilities of a single window for processing their proposals for establishing an industry.

(9) The government should persuade the industries of the region to extend necessary help by giving support to the new entrepreneurs by treating these industries as ancillary units to make entrepreneurship training programmes really effective.

(10) The faculty must be encouraged to interact with industries deputing faculty members to industries for reasonable periods and treat such periods as on duty.

(11) These entrepreneurs may be given preferential treatment in matters related to allotment of industrial sheds/plots together with necessary infrastructural facilities. In the long run, the conference recommends that each educational institute must plan a science and technology entrepreneur park so that the institution itself may be in a position to provide this facility to the entrepreneurs trained by them and also extend them necessary technical help and guidance in the earlier stages of their development.

Tamil Language in Foreign Countries

The Department of Tamil Studies in Foreign Countries of the Tamil University organised a two-day seminar on Tamil Language in Foreign Countries on 27th and 28th March, 1987. The purpose of the seminar was to identify the language educational problems of the Tamils settled abroad and help them in Tamil curriculum planning and preparing appropriate instructional materials.

Prof. S. Agasthialingam, Vice-Chancellor, Tamil University, who inaugurated the seminar, stressed the need for a detailed study of Tamils' migration to foreign countries and socio-political and economic status of foreign Tamils. He emphasized that the Department of Tamil Studies in Foreign Countries would serve as a clearing house as far as foreign Tamils are concerned. An interdisciplinary approach to the problems of the foreign Tamils should be encouraged, he added.

The seminar dealt with the socio-linguistic situation of the foreign countries where Tamils live, in general and Tamil language situation in particular. Research papers on Singapore, Malaysia, Sri Lanka, Mauritius, Seychelles, South Africa, Great Britain, Africa, Thailand, Burma, Fiji and West Germany were presented.

Course in Remote Sensing

The Centre of Studies in Resources Engineering of the Indian Institute of Technology, Bombay would organise a long term course on Remote Sensing and its application to various themes such as Water resources, Mineral resources, Terrain evaluation and Landuse Planning from 27th July, 1987. The objective of the course is to train middle level in service engineers and scientists in the area of fundamentals of satellite remote sensing. The contents of the course comprise fundamentals of Mathematics, Physics, and Computer Programming; Core topics—Image Processing and Digital Analysis, Photo Interpretation and Aerial Photography and Cartography; Elective themes—Water Resources Studies, Mineral Exploration and Terrain Evaluation and Landuse Planning; and other topics—Importance of Integrated Approach, Data Base, Visual and other Instruments and Colour Photography and other Processes.

The course of 32 weeks duration will last till 4th March, 1988. Further details can be had from Dr. T.V. Pavate, Chief Project Engineer, Training, Extension and Project Cell, R.S.D. No. VI, C.S.R.E., IIT, Bombay-400 076.

Course on Computer Applications in Social Sciences

The Centre for Social Studies, Surat, proposes to organise a two-week ICSSR sponsored course on Computer Applications in Social Sciences from 1 June, 1987. The course is meant for researchers and university teachers who are engaged in survey based research and have to deal with analysis and processing of data. The orientation of the course would be to expose the participants to fundamentals of computer, computer processing, FORTRAN language and foundation of data processing and quantification methods. Further details may be obtained from Course Director, Centre for Social Studies, South Gujarat University Campus, Udhna-Magdalla Road, Surat-395 007.

FICCI Awards

The Centre for Rural Development and Appropriate Technology of the Indian Institute of Technology, Delhi, has been selected for '1986 FICCI Award' in recognition of the work done at the Centre in the field of rural development. This was announced by the Secretary-General of the Federation of Indian Chambers of Commerce and Industry (FICCI) recently in New Delhi.

Prof. S. Krishnaswamy, Vice-Chancellor, Madurai Kamaraj University, Madurai and Prof. V.L. Chopra of the Biotechnology Centre of Indian Agricultural Research Institute, New Delhi have shared the cash award of Rs. 50,000 in the category of individual scientists and technologists in Life Sciences while in the field of Physical Sciences, Dr. A.S. Arya, Head of Department of Earthquake Engineering, University of Roorkee shares the award with Dr. A.V. Rama Rao, Director, Regional Research Laboratory, Hyderabad.

Rs. 50 Crore for Vocationalisation

A sum of Rs. 50 crores has been allocated in the 1987-88 budget for the vocationalisation of education. This was stated by Shri P.V. Narasimha Rao, Union Minister for Human Resource Development recently in Lok Sabha. The Minister said that detailed schemes were being prepared in the light of the recommendations made by the Dr. Bajaj Committee.

Statutory Status for AICTE Likely

The Government of India proposes to accord statutory status to the All India Council for Technical Education (AICTE). According to Human Resource Development Minister, Shri P.V. Narasimha Rao, a Bill is likely to be introduced in the Lok Sabha durring the current session. This would help, the Minister said, in regulation of training of teachers and remove malpractices.

Course in Planetarium Management

The Osmania University proposes to introduce a one-year course in planetarium management from the next academic session. To be started by the Astronomy Department of the university, the course would meet the staff requirements of a number of planetaria being set up all over the country.

News from Agril. Varsities

Makwana Visits HAU

Union Minister of State for Agriculture, Mr. Yogendra Makwana, paid a one day visit to Haryana Agricultural University recently. During his visit the Minister was taken round the research farm of the university, post-harvest technology lab, seed technology lab, College of Vet. Sciences, tissue culture and the university library.

The Minister also held discussions with the senior scientists of the university on the problems of the farmers. He commended the research work being carried out at the university and hoped that the problems of the farmers will be kept in view while formulating the future programmes of the university.

Energy Park at Pantnagar

The G.B. Pant University of Agriculture and Technology proposes to set up an energy park at an estimated cost of Rs 30 lakhs. The first of its kind in any farm university in the country, the project is expected to become operational in about a year's time and will serve as a research-cum-demonstration Centre on renewable energy.

Sports News

Coaching Camps 1987-88

Association of Indian Universities has drawn up elaborate plans to organise coaching camps for university sports persons in the ensuing summer. The idea is to nurture sports talent in universities by keeping them fruitfully occupied during vacations.

Coaching camps have been allotted to 41 universities as detailed hereunder.

1. **Allahabad**
    - i) Athletics
    - ii) Volleybal (M)
2. **Calicut**
    - i) Athletics
    - ii) Badminton (M&W)
    - iii) Volleybal (W)
3. **Delhi**
    - i) Athletics
    - ii) Badminton (M&W)
    - iii) Basketball (W)
4. **Gandhiji**
    - i) Athletics
    - ii) Basketball (W)
    - iii) Football
    - iv) Volleybal (W)
5. **Kerala**
    - i) Athletics
    - ii) Basketball (M)
    - iii) Hockey (W)
    - iv) Basketball (W)
6. **Meerut**
    - i) Badminton (M&W)
    - ii) Wrestling
7. **Punjabi**
    - i) Athletics
    - ii) Hockey (M)
8. **Rajasthan**
    - i) Athletics
    - ii) Volleybal (M)
9. **Jammu**
    - i) Badminton (M&W)
10. **Jodhpur**
    - i) Badminton (M&W)
    - ii) Volleyball (M)
11. **Kurukshetra**
    - i) Basketball (W)
    - ii) Hockey (W)
    - iii) Wrestling
12. **Punjabrao Krishi Vidyapeeth**
    - i) Badminton (M&W)
13. **Punjab Agril.**
    - i) Badminton (M&W)
    - ii) Hockey (M)
14. **North Bengal**
    - i) Badminton (M&W)
    - ii) Football
15. **Berhampur**
    - i) Basketball (M)
    - ii) Hockey (M)
16. **Haryana Agril.**
    - i) Basketball (M)
17. **BHU**
    - i) Basketball (M)
    - ii) Wrestling
18. **Nagpur**
    - i) Basketabll (M)
    - ii) Volleyball (M)
19. **Vikram**
    - i) Basketball (M)
20. **Mohanlal Sukhadia**
    - i) Basketball (M)
21. **Sardar Patel**
    - i) Basketball (W)
    - ii) Volleyball (W)

We Congratulate.........

Prof. P.N. Srivastava, Vice-Chancellor, Jawaharlal Nehru University, who has been appointed as Member of the Planning Commission.

22. Gujarat
  i) Hockey (W)
  ii) Wrestling

23. Rani Durgavati
  i) Basketball (W)
  ii) Hockey (W)
  iii) Volleyball (W)

24. SNDT
  i) Basketball (W)
  ii) Volleyball (W)

25. Banasthali
  i) Basketball (W)
  ii) Hockey (W)

26. APS, Rewa
  i) Football

27. Bangalore
  i) Football
  ii) Hockey (M)

28. Kashmir
  i) Hockey (W)

29. Madras
  i) Football
  ii) Volleyball (W)

30. Osmania
  i) Football
  ii) Volleyball (M)

31. Panjab
  i) Football
  ii) Hockey (M)

32. Shivaji
  i) Football
  ii) Wrestling

33. Aligarh
  i) Hockey (M)
  ii) Volleybal (M)

34. Guru Ghasidas
  i) Hockey (M)
  ii) Hockey (W)

35. Ranchi
  i) Hockey (M)
  ii) Volleyball (W)

36. Baroda
  i) Hockey (W)
  ii) Basketball (M)

37. Burdwan
  i) Volleyball (M)

38. Amravati
  i) Wrestling
  ii) Athletics

39. Himachal Pradesh
  i) Wrestling

40. Maharshi Dayanand University
  i) Wrestling

41. Orissa Univ. of Agril & Tech.
  i) Volleyball (M)

Statistics Society for Sports

Indian Statistical Society for Sports and Physical Education has recently been established at the Laxmibai National College of Physical Education, Gwalior. The Society aims at developing a National Data Bank for different sports and games in the country and will contain records of all national and international competitions.

It will also develop 'sports statistics' as a subject at the university level and will extend financial help in the form of fellowships. In addition, the Society will conduct seminars, summer courses, workshop and orientation courses and publish journals and pamphlets to disseminate latest statistical techniques as applied to Sports and Physical Educational Analysis.

News from Abroad

Grants for Scientific Meetings

The Third World Academy of Sciences entertains requests for grants to support scientific meetings to be held in developing countries in the fields of Biological Sciences Chemical Sciences and Geological Sciences. The purpose of the grants is to encourage organisation of Regional and International Scientific Conferences, Workshops and special meetings in the Third World. Scientific institutions and organizations in Third World countries holding meetings in their countries may apply for grants to cover the travelling expenses of lecturers from abroad and/or young scientists from the region. Organizers of international conferences being held in developing countries may also apply for grants to assist with travelling expenses of eminent scientists from developing countries, the expenses of principal speakers who are unable to obtain sufficient funds from other sources, or travelling expenses for young promising scientists from the region. Preference is given to those meetings which are likely to benefit the scientific community in developing countries and to promote regional and international cooperation in developing science and its application to the problems of the Third World. Closing dates for receipt of completed requests are 1st June 1987 and 1st December 1987 for meetings to be held during January to June 1988 and July to December 1988 respectively. Further details can be had from:

The Third World Academy of
Sciences
C/o International Centre for
Theoretical Physics (ICTP)
P.O. Box 586-34100 Trieste-Italy.

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
May 9-10, 1987	National Seminar on Physical Fitness and Sports Standards in Universities	To identify various problems impinging upon sports performance and to deliberate on issues having significant bearing on mass awakening and motivation for promoting sports and physical education.	Association of Indian Universities (AIU) in collaboration with Mohanlal Sukhadia University, Udaipur.	Shri G.S. Sivia, Dy. Secretary (Sports), Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi - 110002.
May 19-21, 1987	XVIII Indian Sociological Conference	Theme: Sociology and Social Transformation in India.	Department of Sociology, North-Eastern Hill University, Shillong.	Prof. M.N. Karna, Organising Secretary, XVIII Indian Sociological Conference, Deptt. of Sociology, NEHU, Shillong-793014.
June 1-30, 1987	Summer School in Plasma Physics	To give broad exposure of plasma physics to the students of M.Sc. in Physics and fresh research scholars	Department of Physics, Ravishankar University, Raipur (M.P.)	Dr. S. Guha, Convener, Dept. of Physics, Ravishankar University, Raipur (M.P.)
September 6-19, 1987	International Seminar on University Administration	To consider the impact upon administration of changes in both the external and internal environment of universities and the development of appropriate styles, structures and management in administration	The British Council, London (to be held at the University of Salford, Salford, England)	Mr. Stuart R. Bosworth Registrar, University of Salford, Salford, England M5 4WT.
November 16-20, 1987	Seventh National Symposium on Radiation Physics	To provide a forum for a collective discussion and identification of the emerging new directions in the field of Radiation Physics	Department of Physics, Mangalore University, in collaboration with the Indian Society for Radiation Physics	Dr. N. Lingappa, Convener, Programme Committee, NSRP-7 and Head, Department of Physics, Mangalore University, Mangalore.
November 26-28, 1987	International Seminar on Instrumental Methods of Electro-Analytical Techniques.	To provide a forum to research workers and practitioners for exchange of information and technical perceptions in instrumental methods of electroanalysis.	Indian Institute of Science, Bangalore.	Prof. M.H. Dhananjaya Principal and Chairman of the Organising Committee, S.J. College of Engg., Mysore.
December 7-11, 1987	Seventh Triennial International Conference on Thin Films. (ICTF-7)	To take stock of recent progress in the field of science, technology and applications of their films.	Indian Institute of Technology, New Delhi, in collaboration with IUVSTA Thin Film Division and Indian Vacuum Society.	Dr. Lalit Malhotra, Secretary, ICTF-7, Thin Film Laboratory, Deptt. of Physics, Indian Institute of Technology, New Delhi-110016.
December 16-18, 1987	International Symposium on Electronic Devices, Circuits and Systems	To provide a forum to research workers all over the world for exchange of information and technical perceptions in electronic devices, circuits and systems.	Indian Institute of Technology, Kharagpur	Prof. N. B. Chakravarti, Department of Electronics and Electrical Communication Engineering, Indian Institute of Technology, Kharagpur - 721302

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Gururaj, Udipikar Shrinivas. *On the coefficients of the hilbert polynomial of certain determinental ideal.* Panjab. Prof. S.S. Abhyankar.

2. Sucheta. *Dimension subgroups and schur multiplicator.* Panjab. Prof. I.B.S. Passi.

Statistics

1. Chandrasekhara Bhat, C. *Application of geometric probabilities in industrial and bio-science problems.* Kerala. Dr. R.N. Pillai.

2. Prasanna Kumari, J. *Distributional aspects of geometric probabilities.* Kerala. Dr. R.N. Pillai.

Physics

1. Bhattacharya, Somanath. *Fiber optics.* BHU. Prof. K.K. Dey.

2. Mathew, Varughese. *A study of winds and waves in the lower atmosphere in tropical Indian region.* Delhi. Dr. O.P. Nagpal.

3. Sham Sunder. *Collective mass fragmentation dynamics studied for nuclear clustering and other ion reactions.* Panjab. Dr. Raj K. Gupta.

Chemistry

1. Balbir Singh. *Solvation studies of* $Cu+$, $Ag+$ *and* $Tl+$ *in pyridine acetonitrile mixtures at different temperatures.* Panjab. Dr. D.S. Gill.

2. Khot, B.R. *Synthesis of some biologically active quinoxaline derivatives.* Shivaji. Dr. M.B. Hogale.

3. Malhan, Neelam. *Synthesis and characterization of rare earth metal complexes.* Delhi. Dr. N.K. Kaushik, and Dr. S. S. Singh.

4. Sharma, Vinod Kumar. *Studies of some new tribromoacetates of metals and their derivatives.* Panjab. Dr. J.K. Puri.

5. Verma, Pawan Kumar. *Reactivity of lithylated bis (trimethylsilyl) hydrazines.* Panjab. Prof. S.K. Vashisht.

Earth Sciences

1. Goyal, Navin. *A contribution to the geology of Western Part of the Leo Pragial magnatitic-complex, District Kinnaur, H.P. India.* Panjab. Dr. Ramesh K. Kakar and Dr. V.B. Bhanot.

2. Syed, Azhar. *Palaeontology and biostratigraphy of the lower tertiary formations in parts of Kashmir, Shimla and Garhwal Himalayas with special reference to the base of the subathu formation.* Panjab. Dr. S.B. Bhatia.

3. Vallinayagam, G. *Geology and geo-chemistry of alkaii granites and the associated acid volcanics around Mokalsar, District Barmar, W. Rajasthan, India and their bearing on the rift tectonics.* Panjab. Dr. Naresh Kochhar.

Engineering & Technology

1. Biur, Arun Prakash. *Thick-film materials and hybrid micro-circuits.* BHU. Prof. S.K. Srivastava.

2. Kuruvilla, Ancy. *Computer simulation in atmospheric physics.* Kerala. Dr. K. Revathy.

3. Vohra, Alka. *Coherent and incoherent beam interaction with semiconductors.* Delhi. Dr. G.P. Srivastava.

BIOLOGICAL SCIENCES

Anthropology

1. Ahluwalia, Poonam. *Age changes in anthropometric measurements and physical performance in tibetan girls from 5 to 18 years.* Panjab. Dr. R.N. Vasisht and Prof. L.S. Sidhu.

2. Sharma, Ram Pravesh. *Palmar configurations in sterile females.* Delhi. Dr. H.K. Kumbnani.

Microbiology

1. Gupta, Manohar Lal. *Production, purification and characterization of alpha haemolysis of Escherichia Coli.* Panjab. Dr. P.J. Asnani, Dr. R.M. Pathak and Dr. P.S. Grover.

Biophysics

1. Pradeep Kumar, G. *A biophysical study of sperm membranes.* Devi Ahilya. Dr. P. Agarwal.

2. Raswinder Kaur. *Molecular Characterization of spermatozoan plasma membrane.* Panjab. Prof. S.B. Bawa and Prof. Shobha Sehgal.

Biochemistry

1. Bright, J. John. *Surface antigens of filarial parasites.* Kerala. Dr. R. Kaleysa Raj.

2. Cherian, Sheeja. *Studies on the antidiabetic effects of a glucoside isolated from Ficus Dengalensis Linn.* Kerala. Dr. K.T. Augusti.

3. Evans, D.A. *Biogenic amines of the bancroftean of filariasis.* Kerala. Dr. R. Kaleysa Raj.

4. Jayadeep A. *Biochemical changes in regenerating lizzard tail.* Kerala. Dr. Venugopal P. Menon.

5. Rajagopalan, T. *Studies on the acute and chronic effect of organopesticides on nontarget organisms.* Kerala. Dr. K. Saraswathy Devi.

6. Santhamma, K.R. *Studies on formation and release of microfilariae.* Kerala. Dr. R. Kaleysaraj.

7. Serji, K. *Studies on the biochemical effect of organopesticides.* Kerala. Dr. K. Saraswathy Devi.

8. Sunilkumar, K.B. *Investigations on the effect of organopesticides on protein malnutrition.* Kerala. Dr. K. Saraswathy Devi.

9. Suresh, M. *Mitochondrial systems of filarial parasites.* Kerala. Dr. R. Kaleysaraj.

10. Suresh Babu, N. *Investigations on the nutritional effect of the leaves of Moringa pterygosperma as a source of plant protein and vitamins in poultry feed.* Kerala. Dr. K.T. Augusti.

11. Vijayanathan, Lekshmi. *Biogenic amines of filarial parasites.* Kerala. Dr. R, Kaleysaraj.

12. Vinod Kumar, R. *Investigations on the biochemical effects of a hypoglycemic leucocyanidine isolated from Ficus bengalensis Linn.* Kerala. Dr. K.T. Augusti.

Botany

1. Hanumantha Rao, Gundimeda. *Reproductive biology and flowering plants.* Delhi. Dr. K.B. Shivanna.

Zoology

1. Amanjit. *Biochemical and histomorphological variations and toxicity of carbamates in the Syrphid flies (Subfamily: Eristalinae).* Panjab. Dr. M.L. Sareen.

2. Hazuria, Deepika. *Effects of steroidal and non-steroidal compounds on the male reproductive tract and liver functions of sexually mature albino rats.* Panjab. Prof. (Mrs.) Usha Kanwar.

3. Kum Kum. *A study of the internal reproductive organs on some Indian curculionidae and their significance in taxonomy (Coleoptera: Insecta).* Panjab. Prof. H.R. Pajni.

4. Sharma, Gurudatt. *Histopathological and histochemical changes in various tissues of H. fossilis in relation to the accumulation of certain insecticide residues: A quantitative study using G.L.C.* Devi Ahilya. Dr. L.K. Mudgal.

5. Sharma, Ruchira. *Taxonomic studies on some Indian rhyncritinae with particular reference to the male and female genitalia (Coleoptera: Curculionoidae: Attrlabidae).* Panjab. Prof. H.R. Pajni.

Medical Science

1. Agarwal, Ram Kishore. *Studies on some derivatives of gum.* HS Gour. Dr. Pradeep Mishra.

2. Dwivedi, Rakesh Kumar. *Effect of indigenous drugs on the function of gastrointestinal tract.* BHU. Dr. R.K. Sharma and Prof. G.P. Dubey.

3. Jain, Sanjay Kumar. *Development of polymeric transdermal drug delivery system for some drugs.* HS Gour. Prof. V.K. Dixit.

4. Maheshwari, Rajesh Kumar. *Approach to the ideal suspension formulations of some life saving drugs.* HS Gour. Shri R.K. Upadhyay.

5. Pandey, Subhash Kumar. *Designing of systemic site specific formulation of some drugs.* HS Gour. Prof. V.K. Dixit.

Agriculture

1. Daljit Kaur. *Studies on the interaction between insecticides and micro-organisms inhabiting honey bees.* Panjab. Prof. K.G. Gupta, Dr. C.K. Shirkot and Dr. J.K. Sharma.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Bandyopadhyay, Tulsidas. *Some problems on the theory of special functions.* Calcutta.

2. Chandel, Rameshwar S. *A study of multivariable H-function and its applications.* Sukhadia.

3. Gupta, Ravindra. *Some investigations in generalised distributional integral transformations.* Sukhadia.

4. Ojha, Aparajita. *Bivariate spline interpolation.* Durgawati.

Statistics

1. Butani, Nanik. *Generalized stochastic models in reliability theory.* Delhi.

Physics

1. Arya, Shesh Kanta. *Vibrational and magnetic resonance studies on hemoproteins and tissues afflicted with bacterial assemblies in thermal burns.* Delhi.

2. Bansal, T.C. *Investigation of the lower ionosphere using multi-frequency absorption measurements of the radio wave at low latitudes.* Sukhadia.

3. Bharti, Aruna. *Study of high energy interactions of heavy ions with nuclear emulsion.* Rajasthan.

4. Bose, Mridul. *Study of wave interactions with plasma.* Ravishankar.

5. Chauhan, Maya Singh. *Positron annihilation studies in crystalline and amorphous alloys.* Rajasthan.

6. Dwivedi, Chandra Bhushan. *Study of nonlinear effects in plasmas.* Ravishankar.

7. Hanuman Singh. *Study of electron momentum distributions in some 4d transition metals by compton scattering technique.* Rajasthan.

8. Hemachandran, Kattamanchi. *X-ray spectroscopic studies of some minerals.* ISM. Dhanbad.

9. Kapale, Vasudev Gambhir. *Studies on compound semiconductor (AgGaSe2) thin films.* Patel.

10. Mohan Lal. *K and L X-rays fluorescence cross-section and relative intensity measurements and applications using energy dispersive X-rays fluorescence (EDXRF) technique.* Panjab.

11. Pare, Suresh Kumar. *Studies in doped thin polymeric films.* HS Gour.

12. Pradeep, B. *A study of the preparation and characterization of bismuth telluride and bismuth oxide thin films.* Cochin.

13. Raychaudhuri, Santwana. *Some studies of wave propagation in plasmas.* Calcutta.

14. Sahu, Sarat Chandra. *Studies on some aspects of low latitude sporadic and normal E layers.* Andhra.

15. Sardesai, Dileep Vidyadhar. *Effect of methodology used by the study of ionospheric drift parameters.* Sukhadia.

16. Singh, Ram Awadh. *Superfluid properties of liquid 3 He.* Rajasthan.

17. Shrivastav, Pankaj Kumar. *Study of short period anisotropic variations of cosmic ray intensity.* Awadhesh.

18. Venkateswara Rao, Pisipaty. *Application oriented studies on some epoxy resins.* Andhra.

19. Varma, Harshvardhan. *Mossbauer effect study of natural crystals.* Sukhadia.

20. Venu Gopalan, K. *Investigations of EFG in metals by hyperfine interactions.* Sukhadia.

Chemistry

1. Acharya, Baman Prasad. *Studies on the chemistry of 2 isocyanatobenzoylchlorides.* Utkal.

2. Adhikari, A. Vasudeva. *Studies in antibacterials.* Karnatak.

3. Bhatt, B. Shridhar. *Some studies with synthetic organic ion exchangers.* Sukhadia.

4. Bikaneria, Shanti Lal. *Kinetic studies of the effect of some transition metal ions (manganese II) on the oxidation of organic compounds by chromium VI.* Sukhadia.

5. Chakraborti, Anutosh Kumar. *Studies on inhibition action of some compounds on corrosion of mild steel.* Calcutta.

6. De, Syamali. *Studies on metal periodate, lellurate and protein complexes.* Calcutta.

7. Dubey, Gyanesh Chandra. *Tetragonoloba (Linn) Taub studies in the use of methylene blue for solar energy conversion.* Sukhadia.

8. Dubey, Thakur Das. *Studies in the use of toluidine blue for solar energy conversion.* Sukhadia.

9. Elizabethe, J. Mary. *Investigation on some binuclear and amino acid complexes of selected transition metals.* Hyderabad.

10. Gupta, Suresh Chandra. *Chemical investigations on ground water pollution as affected by zinc smelter effluent in Udaipur District, Rajasthan.* Sukhadia.

11. Gyan Chand. *Structural studies of some naturally occurring polyphenolics.* Delhi.

12. Ismail, P.K. *Studies on the isolation, purification, structure elucidation and properties of alkaloids in guinca grass, Panicum maximum.* Calicut.

13. Jai Prakash. *Kinetics and mechanism of complexation reactions of (i) Ni (II), Co (II) Cd (II) - L-histidine (ii) Co (II), Ni (II)-L-tyrosine (iii) Ni (II), Co (II). Cd (II)-DL-aspartic acid (iv) Ni(II) - L-glutamine (V) Ni(II)-L-serine, L-leucine, L-alanine.* Delhi.

14. Jain, Arvind Kumar. *Phytochemical investigations on some trifolium plants.* HS Gour.

15. Jain, Shashi. *Physico-chemical studies of some metal ions with lamineoxy acids.* Sukhadia.

16. Kulkarni, Geeta Manohar. *Search for physiologically active nitrogen heterocycles.* Karnatak.

17. Michael, George. *Structural modifications on aleuritic acid leading to facile synthesis of the Queen substance of honey bee and the housefly pheromone muscalure.* Delhi.

18. Mohanty, Indu Bhusan. *Photo-induced vinyl polymerization and graft copolymerization.* Utkal.

19. Nair, Shailaja B. *Furyl analogs of substituted flavonoids in the synthesis of oxygen and nitrogen heterocyclics.* Nagpur.

20. Ohri, Suneeta. *Preparation of polymers and foams from agrowastes.* Panjab.

21. Patel, Shaileshkumar Parsottamdas. *Study on development of derivatives of Gaur Gum.* Patel.

22. Patwardhan, Abhay A. *Studies on trace analysis of elements by polarography.* Nagpur.

23. Pitliya, Roshan Lal. *Kinetic study of some physio-chemical oscillations.* Sukhadia.

24. Raval, Mukesh Kumar. *Cation modulation of membrane stabilization of chloroplasts.* Sambalpur.

25. Ray, Rabindrayan. *Physico-chemical studies on some divalent transition metal complexes.* Utkal.

26. Sabira Banu. *Dibenzomylmethane and its analogues in analysis.* Sukhadia.

27. Sarma, J.A.R.P. *The role of non-bonded interactions in the crystal structures of planar aromatic compounds.* Hyderabad.

28. Sewani, Jagdish Prasad. *Kinetics of oxidation of acetophenone and some substituted acetophenones by selenium dioxide.* Awadhesh.

29. Sharma, Diwakar. *Synthesis of heterocyclic compounds through some nucleophilic synthesis.* Rajasthan.

30. Shrivastava, Nisha. *Studies on metallic complexes.* HS Gour.

31. Soral, Anil. *Kinetic study of the oxidation of esters of mandelic acid with cerium (IV).* Sukhadia.

32. Srivastava, Yogendra Kumar. *The chemistry of flavonoid compounds.* Sukhadia.

33. Sundaram, Vasanthi. *Characterisation and utilisation of fly ash.* ISM, Dhanbad.

34. Taleshra, G.L. *Studies on amino-oxy and related compounds.* Sukhadia.

35. Viplava Prasad, Uppuleti. *New analytical methods for the determination of some food additives in foods.* Andhra.

36. Zade, Anilkumar B. *Studies in some ternary complex forming systems of rare earths with organic dyes and micelle forming surfactants.* Nagpur.

Earth Sciences

1. Bhat, Gh. Mohd. *Microfacies analysis of limestone formations around Varinag, Kashmir Himalaya.* Jammu.

2. Habibur Rahman. *Sedimentology of the shali formation exposed in the Gumma-Khaira-Tattapani Region of the Shimla Hills, Northwestern Himalayas.* Panjab.

3. Ravindra Kumar. *Quantitative study of late cenozoic smaller benthic foraminifera of Neill Island, Andaman Sea.* Delhi.

4. Sen, Amit Kumar. *Geology of the alkaline ultramafic acarbonatite complex and associated mineralization in the Sung Valley, Khasi and Jaintia Hill Districts, Meghalaya, India.* ISM, Dhanbad.

Engineering & Technology

1. Arbind Kumar. *Matrix modelling of coal crushing plant.* ISM, Dhanbad.

2. Modani, Shrigopal. *Investigation of auto-reclosing of high voltage power systems and the development of integrated electronic circuits for the same.* Rajasthan.

3. Sanyal, Prasenjit. *Effect of mesh of grind on floatation of copper ore.* ISM, Dhanbad.

4. Venugopal, R. *Studies on green pelletization characteristics of manganese and pyriteferous shales.* ISM, Dhanbad.

5. Verma, Keshav Singh. *Use of waste steam for improving the output and performance of stationary gas turbine plants.* Devi Ahilya.

CLASSIFIED ADVERTISEMENTS

GUJARAT AGRICULTURAL UNIVERSITY

SARDAR KRUSHINAGAR-385506

DIST. BANASKANTHA

Advertisement No. 2/87 **Dated: 26-3-1987**

NEEDS

The Gujarat Agricultural University needs following positions for the faculty of Dairy Science at its constituent College, namely, Sheth M.C. College of Dairy Science, Gujarat Agricultural University, Anand.

Name of the Post and Pay Scale 1	Discipline 2	No. of Post Vacant 3
1 : **Principal**	Dairy Technology	1
Rs. 1500-60-1800-100-2000-125/2-2500 plus other allowances as per University Rules with rent free accommodation.		
2 : **Professor**	Management Science/ Computer Science.	1
Rs. 1500-60-1800-100-2000-125/2-2500 plus other allowances as per University Rules.	Dairy Engineering.	1
3 : Associate Professor/ Associate Research Scientist.	Dairy Technology	2
	Dairy Engineering	3
Rs. 1200-50-1300-60-1600-Assessment-60-1900 plus other allowances as per University Rules	Dairy Chemistry	1
	Dairy Microbiology	1
	Management Science/ Computer Science.	1
4 : Assistant Professor/	Dairy Technology	3
Assistant Research-Scientist.	Dairy Engineering	5
Rs. 700-40-1100-50-1300-Assessment 50-1600 plus other allowances as per University Rules.	Dairy Chemistry	1
	Dairy Microbiology	3
	Dairy Economics	1
	Agril. Economics	
	Computer Science.	

Application forms alongwith details regarding qualifications, experience and other terms and conditions for above posts can be had upto **20-4-1987** from the Registrar, Gujarat Agricultural University, Sardar Krushinagar - 385506, Dist. Banaskantha on cash payment of Rs. 2/- (Money order will not be accepted) or by sending crossed Indian Postal Order of equal amount issued in favour of "Comptroller, Gujarat Agricultural University, Sardar Krushinagar", alongwith the self addressed envelope (23 x 11 cms) affixed with Rs. 2.20 paise postage stamps.

The applications duly completed in all respects should reach the Registrar at above address on or before **30-4-1987** invariably through proper channel.

The candidates already in the service of this University may also apply through their respective officers in prescribed form with six copies of authenticated bio-data without I.P.O. All candidates called for the interview will have to attend the same at their own cost.

1. Incomplete applications will not be considered.
2. The University reserves its full right to fill up or not to fill up any or all the posts and to give or not to give appointment to the candidates selected by the Selection Committee.
3. Canvassing in any form will completely disqualify a candidate for employment under this University.
4. Selected candidates for above posts or category are transferable at any campus or centre of the University and between education, research and extension activities/Project.
5. Those who have applied earlier in response to our Advertisement No. 5/85 dated 29-10-1985 should intimate on plain paper positively and also state changes in their qualifications or experience, if any, with authenticated documents.

R. J. Patel
REGISTRAR

BANARAS HINDU UNIVERSITY

VARANASI-221005

CORRIGENDUM

For M.A. (Museology) 2 year course eligibility qualifications may be read as M.A. in History/AIHC & Archaeology/ Sanskrit/History of Arts or allied subjects with 50% marks in the concerned subject as well as in the aggregate instead of B.A. (Honours) under 10+2+3 pattern.

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

P.O. IIT Powai, Bombay-400 076

Advertisement No. C-113/87

Applications on plain paper are invited for the following permanent posts at the Department of Computer Science and Engineering and Computer Centre of this Institute. Persons employed in Govt./Semi-Govt. Organisations or Educational Institutions should apply through proper channel. The posts carry allowances such as D.A., H.R.A., C.C.A. as per rules of the Institute which at present correspond to those applicable to the Central Government employees stationed at Bombay. Depending on qualifications and experience, a higher salary may be offered to deserving candidates.

A fourth generation main-frame Computer System (Cyber 180/840) has been recently installed at the Computer Centre which looks after the computing requirements of the Institute and other organisations. With the Cyber-180/840 Computer System, the Computer Centre is one of the most modern and sophisticated centres in India. In addition, the Institute has a number of mini and micro-computing facilities. Post reserved for SC/ST, if any, will be filled as per the rules of the Institute.

Total emoluments on the minimum of the scale :

	Including H.R.A. Rs.	*Excluding H.R.A.* Rs.
On basic pay of Rs. 1500/-	3405.35	3245.00
On basic pay of Rs. 1200/-	3075.35	2915.00
On basic pay of Rs. 700/-	2123.98	1974.35

(1) Systems Manager : Computer Centre

The incumbent will either be appointed in the pay scale of Rs. 1500-60-1800-100-2000 or Rs. 1500-60-1800-100-2000-125/2-2500 depending on the qualifications and experience of the candidate.

Systems Manager will be responsible for the overall management of the Computer Centre and will assist the Head, Computer Centre in planning and management of the various facilities at the Centre.

Specifically, his responsibilities include:

(a) Supervision of all the operational and maintenance requirements of the Centre.
(b) Interaction with the Computer users.
(c) Regular performance monitoring and tuning of the system(s) available at the Centre.
(d) Software acquisition and installation.
(e) Software development and maintenance.
(f) Planning and conducting short-term courses primarily for the Computer users.
(g) Planning and preparing relevant documentations for the Computer users.
(h) Attending to any other duties/responsibilities as may be assigned by the authorities of the Institute and the Head of the Computer Centre.

The Systems Manager will lead a team of Software Engineers and Operational staff and he may be provided with accommodation and priority basis and on payment of licence fee as per the rules of the Institute.

Qualifications

(a) M.E./M.Tech./B.E./B.Tech. in Computer Science or in any field of engineering with good academic record.

OR

(b) M.Sc. in Computer Science/Mathematics/Physics with good academic record.

Experience

The candidates should have at least 10 years of relevant experience, out of which not less than 3 years should be in Systems Programming/design and at least 2 years must be in a supervisory position. Some exposure to the internals of a contemporary operating system is essential. Experience with a large time-sharing Computing facility is desirable.

(2) Software Engineer

Scale of Pay : Rs. 1200-50-1300-60-1900.

The incumbent in addition to assisting Systems Manager, will plan and carry out the following duties:-

(a) Regular performance monitoring and tuning of the System(s) available at the Centre.

(b) Software installation, development and maintenance.

(c) Planning and conducting short-term courses primarily for the Computer users.

(d) Planning and preparing relevant documentations for the Computer users.

Qualifications

(a) M.E./M.Tech./B.E./B. Tech in Computer Science or in any field of engineering with good academic record.

OR

(b) M.Sc. in Computer Science/Mathematics/Physics with good academic record.

Experience

The candidate should have at least 5 years of relevant experience, out of which not less than 2 years should be in design of systems and application software for large systems. Some exposure to the internals of contemporary operating systems is essential.

Age limit : Not exceeding 35 years.

(3) Computer Engineer : Department of Computer Science and Engineering

Scale of Pay : Rs. 700-40-1100-50-1600.

Qualifications & Experience

B.Tech. (Computer Science or Electronics) with good academic record and 1 or 2 years experience in design of digital systems (including microprocessors) and/or design and development of system software and application programs.

OR

M.Tech. (Computer Science or Electronics) with dissertation work in above fields.

Age limit : Not exceeding 30 years.

(4) Senior Programmer

(4 posts out of which one for the Department of Computer Science and Engineering).

Scale of Pay : Rs. 700-40-1100-50-1600.

Qualifications and Experience

(a) B.Tech. (Computer Science) with good academic record and at least two years experience in design and development of systems software and application software.

OR

(b) Bachelor's degree in Engineering/ M.Sc. in Computer Science with good academic record and at least three years experience in software and applications package development in reputed concern.

OR

(c) M.Tech. with specialization in Computer Science with relevant project experience and good academic record.

OR

(d) M.E./M.Tech. in any discipline of engineering with good academic record, and at least one year experience in software and applications package development in a reputed concern.

In case the candidate does not possess the requisite experience, he may be offered a post of Junior Programmer in the **scale of** Rs. 550-25-750-EB-30-900.

Age limit : Not exceeding 30 years.

Depending upon the availability, the Institute may provide residential accommodation on payment of usual licence fee etc. to the selected candidates.

Candidates who possess the requisite qualifications and experience may apply stating full name and address, date of birth, details of academic qualifications and experience with copies of certificates, testimonials, list of publications, if any, and the names of three referees with their postal addresses to the Registrar, Indian Institute of Technology, Powai, Bombay - 400 076 **on or before 30th April, 1987**, alongwith a crossed postal order for Rs. 7.50. The candidates belonging to SC/ST communities need not send a postal order.

REGISTRAR

CENTRAL DRUG RESEARCH INSTITUTE

(Council of Scientific & Industrial Research)

Advertisement No. 4/87

Applications are invited for the following posts in the DST Scheme on expansion of Animal House, tenable at C.D.R.I., Lucknow:

1. **Scientist 'C'** : One post
(Rs. 1100-50-1600) (Pre-revised).
(Regular Post of C.D.R.I.)

Qualifications

A degree in Veterinary Science, 1st Class postgraduate degree in animal breeding/ genetics. 6 years experience of working in an Animal House/Research Institute/Animal Farm after Post Graduation. Experience in Animal House is desirable.

Job Requirement

Management and supervision of laboratory animal colonies including non-human primates monitoring animal colonies for their genetic status, scientific breeding of laboratory animals including inbred and special strains, maintenance of breeding records and their analysis.

2. **Scientist 'B'** — One post.
(Rs. 700-1300), (Pre-revised).

Qualifications

M.V.Sc./M.Sc. (Zoology) in 1st Division or Ph.D. candidates having experience of working in an Animal House/ Animal Research Programmes will be preferred.

Job Requirement

Care, breeding and management of laboratory animal colonies including non-human primates. Procurement of necessary material, maintenance of records, laboratory investigations.

3. **Junior Technical Assistant** : Two Posts (1 Reserved for ST)
(Rs. 425-700), (Pre-revised).

Qualifications

A graduate degree in Science with Zoology as one of the subjects and a good academic record. Candidates having experience in an Animal House or Animal Research Programmes will be preferred.

Job Requirement

To carry out breeding operations, experimental manipulations, maintenance of animal breeding records, implementation of routines of feeding, cleaning operations, animal rooms and laboratory maintenance.

General Conditions

1. All the above posts carry usual allowances as admissible under the rules of Govt. of India.

2. A lower standard of suitability in consistent with efficiency will be applied in respect of Scheduled Tribe candidates for the reserved posts. Candidates belonging to this community should invariably enclose an attested copy of the Original caste certificate issued by a competent authority with their application failing which they will not be entitled to the concessions otherwise admissible to them.

3. Since it is not possible to call all the eligible candidates for interview, the applicants will be shortlisted for the purpose and the decision of the Director will be final.

4. Applicants called for interview will be paid single second class railfare to and fro the actual place of undertaking the journey or from the normal place of residence as mentioned in the application whichever is nearer to Lucknow Railway Station.

5. The prescribed application form may be obtained from the Administrative Officer, Central Drug Research Institute Chattar Manzil Palace, Lucknow - 226 001 (U.P.), P.B. No. 173 by sending a requisition duly indicating the post and advertisement number alongwith a self-addressed stamped envelope of appropriate value (23 x 10 cms.). Any request for application form received after **22-4-87** will not be entertained for supply by post. Application duly completed (supported by attested copies of certificates and testimonials) alongwith a non-refundable fee of Rs. 8/- (no application fee is prescribed for ST candidates) in the form of crossed Indian Postal Order drawn in favour of the Director, Central Drug Research Institute, Chattar Manzil Palace, Lucknow-226001 should reach Director, CDRI, Lucknow on or before **11-5-87**. Application received after this date will not be considered.

6. Separate application for each post alongwith requisite postal order in a separate envelope indicating the advertisement number and post applied for should be sent.

7. Candidates in Government/Semi-Govt. organisations, public undertakings and autonomous bodies should route their application through proper channel.

8. Canvassing in any form and/or bringing in any influence political or otherwise, will be treated as a disqualification for the post.

9. Any of the particulars furnished by an applicant if found incorrect at any stage his/her candidature is liable to be rejected and/or if already appointed, his/her service is liable to be terminated.

10. Interim inquiries will not be entertained.

RABINDRA BHARATI UNIVERSITY

56A, B.T. Road, Calcutta-50

Employment Notification No. RB-59/87.

Applications are invited for appointment to the following Posts:

(1) **Professor of Vedic Studies** — One post.

Qualifications : (a) Consistently good academic record with first or Second Class Honours Degree in Sanskrit and first or Second class (C in the 7 point Scale) Master's Degree in Sanskrit with specialisation in the Vedic Studies. (b) A Doctorate Degree of an Indian or Foreign University in Vedic Studies. (c) Publication of research work of high standard or an outstanding academic contribution in the field of Vedic Studies. (d) Capable of teaching Post-graduate classes and guiding research. (e) Teaching experience in a recognised institution.

Preference may be given to the candidates specialised in Historical Philological Methodology.

(2) **Professor of Tagore Cell — One Post.**

Qualifications : (a) Consistently good academic record with first or second class Honours Degree in Bengali/English/Comparative Literature or any discipline dealing with the creative Art of Tagore and first or second class (C in the 7 Point Scale) Master's Degree in Bengali/English/Comparative Literature or any discipline dealing with the creative Art of Tagore having an inter-disciplinary orientation with enough academic and administrative capabilities to Co-ordinate and integrate the ongoing researches on Tagore being carried out in different Departments of the University. (b) A Doctor's Degree or publication of outstanding merit. (c) Capable of teaching Post-graduate classes and experience of guiding research at doctoral level. (d) Teaching experience in a recognised institution.

(3) **Reader in Vedic Studies** — Two Posts.

Qualifications : (a) Consistently good academic record with first or second class Honours Degree in Sanskrit followed by first or second class (C in the 7 Point Scale) Master's Degree in Sanskrit with specialisation in the Vedic Studies. (b) A Doctorate Degree of an Indian or foreign University in Vedic Studies or equivalent published work. Evidence of being actively engaged in (i) research (ii) innovation of teaching Methods or (iii) Production of teaching materials, (c) About 5 years experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding record of teaching/research.

Preference will be given to such candidates who have specialised in Srauta—Mimamsa and/or in linguistics with Sound Knowledge of the Paninian System of Sanskrit grammar.

Selection of Post no. 1 and 2 need not necessarily be confined to the applicants only.

Other things remaining equal, preference will be given to the candidates belonging to Scheduled Caste/Tribes.

Scale of Pay for Professor : Rs. 1500-60-1800-100-2000-125/2-2500.

For Reader : Rs. 1200-50-1300-60-1900, plus usual allowances and other benefits as per U.G.C. rules. Higher initial pay may be admissible in deserving cases on the recommendation of the Selection Committee.

Seven copies of application in prescribed forms (available from the Appointment Section, B.T. Road) together with attested copies of mark sheets from Matriculation/S.F./H.S. onwards and a non-refundable fee of Rs. 20/- by Crossed Indian Postal Order Payable to 'RABINDRA BHARATI' must reach the Registrar/Sr. Superintendent, Appointment Section, 56A, B.T. Road, Calcutta - 50 positively by **April 30, 1987.**

Incomplete applications are liable to be rejected.

R. C. Mitra
REGISTRAR

BANARAS HINDU UNIVERSITY

(Advertisement No. 11/1986-87)

APPLICATIONS are invited for the undermentioned posts. The benefit of Provident Fund/Pension, Dearness Allowance, House Rent Allowance and City Compensatory Allowances are admissible according to University rules. The retirement age of the University Employees is 60 years. The appointment will be made on one year probation on all permanent posts. Higher starting salary within the grade is admissible to specially qualified and experienced candidates.

Applications will be entertained on the prescribed form duly supported with a Bank Draft or Crossed Indian Postal Orders of Rs. 10/- (of Rs. 2.50 for the candidates belonging to Scheduled Caste/Scheduled Tribes category) in favour of the Registrar, BHU towards application fee. **Application form alongwith detailed qualifications will be supplied on receipt of Crossed I.P.O./Bank Draft of Rs. 2/- in favour of the Registrar, B.H.U. and self-addressed envelope of 23 cm x 10 cm size carrying stamps of Rs. 1.80.** Candidates called for interview for these posts will be paid actual Railway fare by the Second Class plus reservation charges for sleeper, if paid, and/or actual Bus fare from the present residence bothways by the shortest route as per university rules. No other expenses will be paid.

Applications for each post be sent separately alongwith attested copies of certificates and marksheets in support of the qualifications and experience mentioned in the application and be addressed to the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221005. INDIA.

Incomplete application in any respect will not be entertained for consideration. Those who are in service should apply through proper channel. Money Order or Cheque will not be accepted towards application fee.

Reservation : (1) A reservation of 15% in the case of s Scheduled Castes and 7½% in the case of Scheduled Tribes will be made in the category of teaching posts upto the level of Lecturers only. (2) A reservation of 22½% (15% S.C. and 7½% S.T.) will be made in the category of non-teaching posts at entry level.

The last date for receipt of application in the Office of the Registrar (Selection Committee Section), Banaras Hindu University either by post or by hand will be **May 30, 1987.** Applications will be received by hand at the Counter only upto 2.30 P.M. on each working day till the last date. No application shall be entertained after the last date from external, in-service employees and the candidates residing abroad.

Note: 1. Number of vacancies are tentative and can vary according to needs.

2. Panel may be drawn for temporary appointment of Lecturers against future vacancies.

Grade

Professor : Rs. 1500-60-1800-100-2000-125/2-2500 (N.P.A. Rs. 600/- p.m. to Medical Graduates appointed in the Institute of Medical Sciences only).

Reader : Rs. 1200-50-1300-60-1900.

(N.P.A. — 50% of pay subject to maximum of Rs. 500/- p.m. to Medical Graduates appointed in the Instt. of Medical Sciences only).

Lecturer : Rs. 700-40-1100-50-1600.

(N.P.A. — 50% of pay subject to maximum of Rs. 500/- p.m. to Medical Graduates appointed in the Instt. of Medical Sciences only).

Other Posts : As indicated against the posts.

Institute of Medical Sciences

1. **Professor of Medicine** (Endocrinology) — (One).

Note: Those who have applied timely in response to Advt. No. 11/1984-85 and No. 8/1985-86 need not apply again.

2. **Professor of Physiology** — (One).

Note: Those who have applied timely in response to Advt. No. 1/1986-87 need not apply again.

3. **Professor of Psychiatry** — (One).

Note: Those who have applied timely in response to Advt. No. 3/1984-85 and No. 8/1985-86 need not aply again.

4. **Reader in Biophysics** — (One).

Note: Those who have applied timely in response to Advt. No. 11/1983-84, No. 3/1984-85 and No. 1/1986-87 need not apply again.

Institute of Agricultural Sciences

5. **Professor-Cum-Senior Scientist:** (Genetics & Plant Breeding — (One) Under All India Co-ordinated Pulse Improvement Project.

Faculty of Science

6. **Professor of Chemistry** (Physical) — (One).

7. **Professor** — (Two). (One in Agricultural Geography and one in Applied Physical Geography/Environment), Under Special Assistance Programme, Deptt. of Geography.

Note : Those who have applied timely for the post of Professor of Chemistry (Physical) in response to Advertisement No. 3/1985-86 need not apply again.

8. **Reader in Geology** (Spl. in Mathematical Geology/Photo- Geology) — (One).

9. **Reader** (Remote Sensing) — (One). Under Special Assistance Programme, Deptt. of Geography.

10. **Lecturer in Geology** (Micropalaeontology and Oceanography — (One).

11. **Lecturer** — (Two), (One in Geomorphology and One in Climatology) — Under Special Assistance Programme, Deptt. of Geography.

Faculty of Arts

12. **Professor of English** (Contemporary Literature) — (One).

13. **Professor of Philosophy** — (One).

14. **Lady Lecturer in Physical Education** — (One) — (Deptt. of Physical Education).

15. **Lecturer in Physical Education** (One) — (Deptt. of Physical Education).

Note: (1) Those who have applied timely for the post of Lecturer—Lady Lecturer in Physical Education in response to Advt. No. 3/1983-84, 6/1983-84, 11/1983-84 and 9/1984-85 need not apply again.

(2) Those who have applied timely for the post of Lecturer in Physical Education in response to Advt. No. 3/1985-86 need not apply again.

Faculty of Social Sciences

16. **Professor of Economics** (Economic Planning/International Trade) — (One).

Faculty of Performing Arts

17. **Lecturer in Karnataka Music** — (One) (Deptt. of Vocal Music).

Note: Those who have applied timely in response to Advt. No. 3/1984-85 and No. 10/1985-86 need not apply again.

Evening College

18. **Principal** — (One)
Grade : Rs. 1500-2500.

Centre of Adult & Continuing Education

19. **Director** — (One).
Grade : Rs. 1500-2500.
20. **Assistant Director** — (One).
Grade : Rs. 1200-1900.
21. **Project Officer** — (One).
Grade : Rs. 700-1600.

Note: Those who have applied timely in response to Advt. No. 2/1983-84 and Advt. No. 9/1984-85 for the posts at Item No. 19, 20 and 21 need not apply again. Their candidature will be considered according to new qualifications.

Shramik Vidyapeeth Under Adult Education Programme of the University

22. **Director** — (One).
Grade : Rs. 1100-1600.

Note: Those who have applied timely in response to Advt. No. 2/1985-86 need not apply again.

Under Biotechnology Programme

23. **Professor/Reader in Biotechnology** (Three) (in the areas of Industrial Microbiology, Membrane Biology, Biochemical Engg. Immunology, Biophysics, Tissue Culture, Bacterial Genetics, Enzymology and Enzyme Engineering).

24. **Reader/Lecturer in Biotechnology** (Four) (in the areas of Industrial Microbiology, Membrane Biology, Biochemical Engg., Immunology, Biophysics, Tissue Culture, Bacterial Genetics, Enzymology and Enzyme Engineering).

Note: Those who have applied timely for the above posts in response to Advt. No. 4/1986-87 need not apply again.

Computer Centre

25. **Systems Manager/Systems Engineer** (Head of Computer Centre) — (One).

Grade : Rs. 1500-2000.

Note: Those who have applied timely for the above post in response to Advt. No. 1/1986-87 need not apply again.

Institute of Technology

26. **Professor of Electronics Engg.** — (One).

27. **Lecturer in Biomedical Engg.** (Instrumentation Assay) — (One) School of Biomedical Engg.

POST GRADUATE INSTITUTE OF MEDICAL EDUCATION & RESEARCH, CHANDIGARH

ADMISSION NOTICE 2/87

Applications on prescribed form are invited so as to reach the undersigned by **23rd April, 1987** for Ph.D. programme in the departments of Internal Medicine, Hepatology and Obstt. & Gynaecology of this Institute for the academic session starting from 1st July, 1987.

Application form and detailed information are available from the office of the undersigned either personally on payment of Rs. 5/- at the counter from 11 A.M. to 12 noon and 3 P.M. to 4 P.M. on all working days or by post for which the request must be accompanied with a self addressed envelope size (23 x 10 cms) bearing postage stamps of Rs. 3.40 and crossed postal order of Rs. 5/- drawn in favour of the Director.

REGISTRAR

DR YASHWANT SINGH PARMAR UNIVERSITY OF HORTICULTURE AND FORESTRY, SOLAN

Advertisement No. 3/87

Applications on the prescribed form are invited for the following posts as per the qualifications mentioned against each:-

I. **Posts in the grade of Rs. 1200-1900.**

1. One post of Scientist in the discipline of Soil Science and Water Management.

Essential : Ph.D. or equivalent degree in Soil Science/Agronomy with consistently good academic record. Four years teaching and research experience in Soil and Water Conservation and significant contributions in the field as evidenced by publications.

2. One post of Scientist in the discipline of Fruit Breeding.

Essential : Ph.D. or equivalent Degree in Pomology/Genetics/Plant Breeding with consistently good academic record. Four years research and teaching experience in breeding of temperate fruits and significant contributions in the field as evidenced by publications.

3. One post of Scientist in the discipline of Agricultural Economics.

Essential : Ph.D. or equivalent degree in Agricultural Economics with consistently good academic record. Four years research and teaching experience in the economics and marketing of temperate fruits/horticultural crops and significant contributions in the field as evidenced by publications.

4. Three posts of Scientists in the discipline of Pomology.

Essential : Ph.D. or equivalent degree in horticulture (Plmology) with consistently good academic record. Four years teaching and research experience in temperate fruits teaching and research experience in temperate fruits and significant contributions in the field as evidenced by publications.

5. One post of Scientist in the discipline of Entomology.

Essential : Ph.D. or equivalent degree in Entomology.

Essential : Ph.D. or equivalent degree in Entomology with consistently good academic record. Four years teaching and research experience in the subject and significant contributions in the field as evidenced by publications.

6. One post of Scientist in the discipline of Plant Pathology.

Essential : Ph.D. or equivalent degree in Plant Pathology with consistently good academic record. Four years teaching and research experience in the concerned subject and significant contributions in the field as evidenced by publications.

7. One post of Scientist in the discipline of Forestry.

Essential : Ph.D. or equivalent degree in Forestry with consistently good academic record. Four years teaching and research experience in the concerned subject and significant contributions in the field as evidenced by publications.

Desirable : Should preferably be trained in Silviculture and have experience of Agro-Forestry.

8. One post of Associate Professor in the discipline of Genetics:

Essential : Ph.D. Degree or equivalent in the subject with consistently good academic record. Four years teaching/research/extension education experience in the subject and significant contributions in the field as evidenced by publications.

Desirable : The person should have worked on population genetics.

9. One post of Associate Professor in the discipline of Vegetable Breeding.

Essential : Ph.D. Degree or equivalent in the subject with consistently good academic record. Four years teaching/research/extension education experience in the subject and significant contributions in the field as evidenced by publications.

Desirable : The experience of teaching and research should be in breeding and seed production of vegetable crops.

10. One post of Associate Professor in the discipline of Zoology.

Essential : Ph.D. Degree or equivalent in the subject with consistently good academic record. Four years teaching/research/extension education experience in the subject and significant contributions in the field as evidenced by publications.

Desirable : Ph.D. Degree in Zoology with specialisation in Rodent Control as evidenced by publications.

11. One post of Vegetable Seed Production Officer in the discipline of Vegetable.

Essential : Ph.D. Degree or equivalent in the subject with consistently good academic record, four years' teaching/research/extension educational experience in the subject and significant contributione in the field as evidenced by publications.

Desirable : The experience of teaching and research should be of Vegetable Seed Production as evidenced by publications.

12. One post of Entomologist in the discipline of Entomology (Bio-control).

Essential : Ph.D. Degree or equivalent in the subject with consistently good academic record. Four years teaching/research/extension education experience in the subject and significant contributions in the field as evidenced by publications.

Desirable : Specialisation/experience in biological control of insect pests as evidenced by publications.

II. Posts in the grade of Rs. 700-1600

1. Three posts of Assistant Scientists in the discipline of Fruit Technology.

Essential : Ph.D. or equivalent degree in Fruit Technology/Food Sciences preferably with specialization in fruit and vegetable preservation or M.Sc. in the concerned or allied subject and holding equivalent post in a University or Organisation of comparable repute.

2. Seven posts of Assistant Scientists (One each in the discipline of Analytical Chemistry, Forest Ecology, Honey Bee Management, Agricultural Extension, Agricultural Economics, Agricultural Statistics and Soil Science).

Essential : Ph.D. Degree in the concerned or allied subject; OR M.Sc. in the concerned or allied subject and holding an equivalent post in a University or Organisation of comparable standard.

3. One post of Assistant Professor in the discipline of Agricultural Economics.

Essential : Ph.D. Degree in the concerned or allied subject; OR M.Sc. in the concerned or allied subject and holding an equivalent post in a University or Organisation of comparable standard.

Desirable : The specialisation should be in production economics or operational research.

Note: In case candidates with the above qualifications are not available, M.Sc. in the concerned or allied subject with consistently good academic record will be eligible.

III. One post of Assistant Architect in the pay scale of Rs. 940-1850 (State Scale).

Essential : Degree or equivalent diploma in Architecture of recognised University with one years' experience under a qualified Architect.

IV. One post of Architectural Assistant Grade-II in the pay scale of Rs. 700-1200 (State Scale).

Essential : Degree or diploma in Architecture of a recognised University/Institution OR Intermediate in Architecture from a recognised University/Institution OR Three years diploma in Architectural Assistantships from a recognised Institution.

Note

1. Educational qualifications relaxable in exceptional circumstances, higher pay admissible in the case of meritorious candidates;
2. Applicant already in service must send their applications through proper channel;
3. The University reserves the right not to fill up any of the post advertised;
4. Applications received after the last date fixed therein may be rejected without making any reference to the candidates. Applications on plain paper are also liable to be rejected;
5. Benefits of Contributory Provident Fund-cum-Gratuity OR General Provident Fund-cum-Gratuity and leave etc., as per University rules.

Application forms can be had from the Registrar, Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Solan - 173230 by sending application fee of Rs. 10/- in the shape of crossed Indian Postal Order(s) payable to the Comptroller, Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Solan-173230 alongwith a self addressed envelope of size 23 x 10 cms.

Application complete in all respects with attested copies of testimonials should reach the Registrar, Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Solan - 173230 by **16-5-1987.**

Candidates applying from abroad may send their applications on plain paper giving particulars of date of birth, examinations passed (from High School onwards) with division and percentage of marks obtained in the various examinations, teaching/research/extension experience with a list of publications, if any, so as to reach the Registrar, Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Solan - 173230 by **31-5-1987.**

Ashwani Kapur
REGISTRAR

COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

COCHIN - 682 022

No. Ac. A1/441/85-II

Dated : 10 March, 1987

ADMISSION NOTICE 1987-88

B. Tech. (Naval Architecture and Ship Building)

Applications are invited for admission to the B. Tech. degree course in Naval Architecture and Ship Building.

Eligibility : A pass in Pre-Degree Examination with first class from any of the Universities in Kerala or equivalent thereto with Mathematics, Physics and Chemistry as subjects of study. A relaxation of 5% in the aggregate marks is allowed for candidates belonging to SC/ST. Those who are expecting 1st class at the Pre-Degree Examination, of the Universities in Kerala, or equivalent may also apply.

Selection : Eligible candidates will have to appear for a comprehensive written test and interview in Cochin at their own expenses. Final selection will be on the basis of the marks secured by the candidate at the qualifying examination, the written test and interview. Admissions will be governed by rules of reservation applicable to professional courses in the University.

Request for application form and prospectus should be addressed to the Head, Department of Ship Technology, accompanied by a self-addressed envelope (23 x 10 cm) stamped for Rs. 1.80 along with a crossed postal order for Rs. 60/- (preferably in denomination of Rs. 50+10) payable to the Head, Department of Ship Technology at Cochin-22 Post Office. Completed applications should reach the Head, Department of Ship Technology, Cochin University of Science and Technology, Cochin-682 022 on or before **11-5-1987.**

REGISTRAR

GUJARAT UNIVERSITY
AHMEDABAD-380009

Applications are invited in the prescribed form available from the Registrar, Gujarat University, Ahmedabad - 380009 so as to reach him on or before **27-4-1987** for the following posts in the various Post-graduate Schools of the University.

Sr. No.	Name of Post	No. of Posts	Remarks
1.	Professor of Political Science	One	
2.	Professor of Hindi	One	
3.	Professor of Microbiology	One	
4.	Professor of Commerce	One	
5.	Professor of Gujarati (First Attempt)	One	This Post is reserved for Candidates belonging to Economically and Socially backward Classes as per Baxi Commission Report.
6.	Professor of Economics	One	
7.	Professor of Sanskrit	One	
8.	Professor of Mathematics	One	
9.	Reader in Life Science (Inter Disciplinary Course)	One	
10.	Reader in Zoology (Third Attempt)	One	This Post is reserved for the candidates belonging to Economically and Socially backward Classes as per Baxi Commission Report.
11.	Reader in Economics	One	
12.	Reader in Philosophy	One	
13.	Reader in Sanskrit	One	
14.	Lecturer in Tamil	One	
15.	Lecturer in Linguistic (Third Attempt)	One	This Post is reserved for Scheduled Tribes Candidates.
16.	Lecturer in History (Third Attempt)	One	This Post is reserved for Scheduled Tribes Candidates.
17.	Lecturer in Law	One	
18.	Lecturer in Botany	One	
19.	Lecturer in Persian (Third Attempt)	One	This Post is reserved for Scheduled Caste Candidates.
20.	Lecturer in Philosophy (Third Attempt)	One	This Post is reserved for Candidates belonging to Economically and Socially backward classes as per Baxi Commission Report.

Pay Scale

Prefessor : Rs. 1500-60-1800-100-2000-125/2-2500.
Reader : Rs. 1200-50-1300-60-1600-Assessment-60-1900.
Lecturer : Rs. 700-40-1100-50-1300-Assessment-50-1600.

A Copy of the rules governing minimum qualifications can be obtained on request.

The above posts carry Dearness Allowance and other Allowances as per the rules of Gujarat University. The benefits of General Provident Fund, Gratuity and Pension will be admissible as per the rules of the University in force from time to time. The candidates selected for the above posts shall have to learn Gujarati Language during the period of probation. The initial gross monthly emoluments on the minimum salary in the scale for Professor, Reader and Lecturer will be approximately Rs. 3625/-, Rs. 3240/- & Rs. 2165/- respectively.

Residential quarters may be provided on request subject to the availability.

The prescribed form of application can be had on payment of Rs. 2/- payable in advance either in cash or by Postal Order. Money Order will not be accepted.

S.V. Shastri
REGISTRAR

ANNAMALAI UNIVERSITY
ANNAMALAINAGAR

Department of Business Administration

Notification No. 3/87

Dated 30-3-1987

APPLICATIONS are invited in the prescribed form for one post of Lecturer in Business Administration in the Department of Business Administration of this University.

APPLICATION forms can be had from the undersigned on payment of Rs. 10/- by cash/money order/postal order (not refundable). Filled in applications (with 5 additional copies) should reach the undersigned on or before **22-4-1987.**

Qualifications

(a) A first class B.E. degree with M.B.A. qualification.

(b) Candidates with industrial experience shall be given preference.

Scale of Pay

Lecturer : Rs. 700-40-1100-50-1600 with usual allowances.

The scale is likely to be revised in the light of the recommendations of the U.G.C.

Those who are in service should route their applications through proper channel.

R. Rajamanickam
REGISTRAR

POST GRADUATE INSTITUTE OF MEDICAL EDUCATION & RESEARCH, CHANDIGARH

Corrigendum

For admission to Ph.D. programme in the Department of Paediatrics of this Institute advertised in this paper on **9-3-87** for July, 1987 session, candidates with M.Sc. (Biochemistry) degree will also be eligible in addition to those with M.Sc. (Microbiology) degree. The closing date for the receipt of applications for the said Ph.D. programme extended to **20-4-87**.

REGISTRAR

SARDAR PATEL UNIVERSITY

VALLABH VIDYANAGAR - 388 120
(GUJARAT)

Notification No. EST/8(1986-87) **Dated : 24-3-1987**

Applications are invited in the prescribed forms available from the University Office on payment of Rs. 5/- in cash or by Indian Postal Order for the following posts so as to reach the undersigned **on or before 20-4-1987.**

Sr.No.	Name of Post	Scale of Pay
1.	Professor of Commerce (Business Management preferably M.B.A.)	Rs. 1500-60-1800-100-2000-125/2-2500.
2.	**Reader each in:**	
	(i) Library Science	Rs. 1200-50-1300-60-1600-Assmt-60-1900.
	(ii) Sociology	
	(iii) Commerce (Two posts) (One post with specialization in Marketing Management)	
3.	**Lecturer each in:**	Rs. 700-40-1100-50-1300-Assmt-50-1600.
	(i) Chemistry (Theoretical Chemistry)	
	(ii) Mathematics	
	(iii) Library Science	
4.	**Temporary posts for Examination Reform Unit:**	
	(i) Co-ordinator	Rs. 1100-50-1300-EB-60-1600.
	(ii) Statistician	Rs. 700-40-1020-EB-45-1200-50-1300-EB-50-1500.
5.	Assistant Librarian	Rs. 700-40-980-EB-40-1100-50-1200-EB-50-1300.

Details of the prescribed qualifications will be supplied alongwith the application forms. All the posts except Sr. No. 4 carry the benefits of Dearness Allowance, Provident Fund, Gratuity and Pension Scheme as per University rules. The posts at Sr. No. 4 carry benefit of Dearness Allowance only.

Preference will be given to the qualified candidates belonging to Scheduled Castes, Scheduled Tribes, Socially and Educationally and/or Economically backward class. Candidate belonging to these castes must attach a certificate from apporpriate authority.

R. C. Thakkar
REGISTRAR

ANNA UNIVERSITY

MADRAS-600 025

Advertisement No. 29381/L3/86.

Dated : 27-3-87

Applications in the prescribed form are invited for the following posts in this University. Application Form, details of prescribed qualifications and other particulars can be had from the Registrar, Anna University, Madras - 25, on application, accompanied by a crossed Indian Postal Order for Rs. 5/- (Rupees Five only) dated not earlier than 31-3-87 drawn in favour of the Registrar, together with a stamped self-addressed envelope (Rs. 1.55) of size 22 x 10 cm.

I. Centre for Human Settlements : Research-cum-Documentation Centre

1. One Programme Co-ordinator (U.G.C. Scale), (Rs. 1200-50-1300-60-1900).
2. One Assistant Professor (U.G.C. Scale), (Rs. 1200-50-1300-60-1900).
3. One Lecturer (U.G.C. Scale), (Rs. 700-40-1100-50-1600).
4. One Systems Assistant (U.G.C. Scale), (Rs. 700-40-1100-50-1300).

II. Computer Centre :

1. One Chief Systems Programmer (U.G.C. Scale), (Rs. 1200-50-1300-60-1900).
2. Two Systems Assistants (U.G.C. Scale), (Rs. 700-40-1100-50-1300).
3. One Computer Operator (U.G.C. Scale), Rs. 700-40-1100-50-1300).

In addition, D.A., H.R.A. and C.C.A. are admissible at the rates in force from time to time.

Request for application forms, details of qualifications/field of specialisation prescribed and other particulars will be entertained upto 30-4-87.

Last date for receipt of completed application is 4-5-87.

REGISTRAR

INDIAN INSTITUTE OF SCIENCE

BANGALORE-560 012

REQUIRES

SENIOR SCIENTIFIC OFFICER in the Department of Physics. M.E./M. Tech in Electronics/Electrical Engg./Computer Science or Engineering/Physical Engg. with Electronic Instrumentation or equivalent degree with good background in electronics including Microprocessors with 5-8 years experience in the field of electronics instrumentation.

Experience in the design and servicing of electronic instruments/micro-computer/computer systems desirable.

Emoluments : Rs. 2,965.35 per month in the scale Rs. 1100-1600. (Salary is likely to be revised when the recommendations of IV Pay Commission become effective).

Details and prescribed application forms can be obtained on request accompanied by a crossed postal order for Rs. 5/- (free of cost to SC/ST on production of Caste Certificate from a competent authority) drawn in favour of 'Registrar', Indian Institute of Science, alongwith a self-addressed stamped (Rs. 5.40) envelope of size 28 x 18 cms. **on or before 24th April, 1987.**

R(IA) 308-12/87. **REGISTRAR**

INDIAN INSTITUTE OF SCIENCE

BANGALORE-560 012

REQUIRES

FINANCIAL CONTROLLER

To be in overall charge of the finance section and be an internal financial adviser.

Emoluments : Rs. 3,245/- p.m. (excluding HRA) at the minimum of the grade Rs. 1500-2500.

Grade likely to have upward revision when IV Pay Commission recommendations become effective. Higher salary may be given to candidates with exceptional merit.

Qualification and Experience

Graduate of a recognised University, with ACA/AICWA/SAS Accountant. Six years managerial experience dealing with budgeting and financial control, funds flow, analysis and interpretation of financial and operating data, computerised system of accounting and MIS preferably in a higher educational institution or R & D organisation. Qualification and experience may be relaxed in the case of candidates with exceptional merit and proven ability.

Prescribed application forms and details can be obtained from the Registrar of Institute before **24-4-1987** on written requisitions accompanied by crossed IPO for Rs. 5/- drawn in favour of the Registrar, Indian Institute of Science (SC/ST candidates exempted on production of certificate from a competent authority) and self-addressed, Rs. 5.40 stamped envelope of size 29 x 18 cms. Last date for receipt of completed application forms is **6-5-1987**. Applicants in the service of Government, Quasi-government, Government aided or similar institutions must apply through proper channel.

IA/308/15/87 **REGISTRAR**

JUST RELEASED

1.	**Bibliography of Doctoral Dissertations Social Sciences & Humanities 1983-84**	**Rs. 180.00**
2.	**Monograph on Sample Free Item Analysis**	**Rs. 50.00**
3.	**Educational Statistics at a Glance**	**Rs. 75.00**

Address Enquiries to :

Under Secretary (Publications)
ASSOCIATION OF INDIAN UNIVERSITIES
AIU House, 16 Kotla Marg, New Delhi 110 002

Telephones : **3310059, 3313390, 3312305, 3312429**
Grams : ASINDU

VIKRAM UNIVERSITY, UJJAIN

No. Dev./Estt./SS/87/7371

Dated : 28-3-87

Applications, in prescribed forms, are invited for the following posts so as to reach the undersigned on or **before 25-5-1987**

Reader : One each in Botany, Geology, Sanskrit and Library and Information Science in the U.G.C. pay scale of Rs. 1200-50-1300-60-1900.

Lecturer : One each in Chemistry, Mathematics, English, Botany, Physics and Library and Information Science and two in Geology in the U.G.C. pay-scale of Rs. 700-40-1100-50-1600, out of which one post each in Botany, Physics and Geology are leave vacancies likely to be continued except Physics.

The minimum essential qualifications of these posts are the same as prescribed by the University Grants Commission. The prescribed application form alongwith the details of qualifications etc., can be obtained from the undersigned on payment of Rs. 10.00 in person or by sending an Indian crossed Postal Order payable to the Registrar, Vikram University, Ujjain (M.P.).

The candidates in employment should send their applications Through Proper Channel. The candidate who desires the application form by Registered Post should send an additional amount of Rs. 7.00 for registration charges. All appointments will be on Two years probation in the first instance except on leave vacancies. The Superannuation age is 60 years.

The University reserves the right to fill up or not to fill up any post and also call any candidate for interview. No T.A./D.A. will be paid for attending the interview, if called for.

D. S. Gargava
Acting REGISTRAR

NATIONAL METALLURGICAL LABORATORY

(Council of Scientific and Industrial Research)

JAMSHEDPUR-831 007

NML Advertisement No. 1/87

Applications are invited to fill up the following vacancies (numbers indicated against each category are likely to increase) at the National Metallurgical Laboratory (NML) Jamshedpur - 831007, in the grades and disciplines mentioned against each:

1. Scientists

Category - I : Scientist EI/EII — 5 posts.

Scale of Pay : Rs. 3700-125-4700-150-5000, Rs. 4500-150-5700.

Scientist C — 16 Posts.

Scale of Pay : Rs. 3000-100-3500-125-4500.

The above posts are in the areas of Computer Application in Metallurgy, Heat and Mass Transfer; Design Engineering, Process and Project Engineering; Fracture and Fatigue, Metal Working; Composite Materials; Project Monitoring and Technology Utilisation.

Essential Qualifications

In relevant fields First Class Bachelor's degree in Engineering/First Class M.Sc. Degree with 12 years for (Scientist EI/EII) and 6 years (for Scientist C) of R & D Experience in any of the above mentioned areas.

OR

In relevant fields Post Graduate Degree in Engineering/Ph.D. in Science with 10 years (For Scientist EI/EII and 4 years for Scientist C) of R& D experience in any of the above mentioned areas.

Category-II : Scientist-B : 4 Posts

Scale of Pay : Rs. 2200-75-2800-EB-100-4000.

The above posts are in the areas of Physical Metallurgy and Phase Transformation; Non-Destructive Evaluation; Iron and Steel; Magnetic and Electronic Materials; Extractive Metallurgy; Thermodynamics; Technology Forecasting.

Essential Qualifications

In relevant fields First Class Bachelor's Degree in Engineering/First Class M.Sc. Degree. Post Graduate Degree in Engineering/Ph.D. in Science in relevant fields will be preferred.

2. Library Officer : 1 Post.

Scale of Pay : Rs. 2200-75-2800-EB-100-4000.

Essential Qualifications

First Class Bachelor's Degree in Lib. Science with 8-10 years experience in a reputed Library.

OR

Master's Degree in Lib. Science/M.Sc. with 4-6 years' experience in a reputed Library.

N.B.: Candidates in category I & II above with truly exceptional credentials can be considered for higher scale/post.

3. Junior Technical Assistant : 3 Posts

Scale of Pay : Rs. 1400-40-1800-EB-50-2300.

Essential Qualifications

B.Sc./Diploma in Engineering/Technology of 3 years duration or equivalent, preferably with experience in handling/maintaining sophisticated equipments such as scanning Electron Microscope (SEM), X-ray Diffractometer (XRD), X-ray Fluorescence (XRF), Differential Thermal Analyzer (DTA), Dialatometer, Oscilloscopes as well as in comprehending the LSI and VLSI circuits.

4. Library Assistant Gr. VIII — 2 Posts.

Scale of Pay : Rs. 1400-40-1800-EB-50-2300.

Essential Qualifications

B. Lib. Sc. or equivalent, preferably with experience in computer based library management.

5. CSIR Fellow : 5 Posts, Duration—for a maximum period of 3 years.

Level of Emoluments

Range 1 : 2000/2100/2200/2300/2400/2500.

Range 2 : 2500/2600/2700/2800/2900/3000.

Range 3 : 3000/3200/3400/3600/3800/4000.

Essential Qualifications

(i) Range 1 : M. Tech. or equivalent degree/MBBS with one year internship/Ph.D. (Sc.) with uniformly outstanding academic record, and clear potential for high quality R & D work.

(ii) Range 2 : M. Tech. or equivalent degree with three years experience/MB/Ph.D. (Sc.)/Ph.D. (Engg.)/with outstanding academic record and proven ability for high quality R & D work.

(iii) Range 3 : M.Tech./MD/Ph.D. or equivalent degree in respective discipline, with original work as evidenced by highly innovative patents or outstanding publications—evidence of leadership, with minimum of 5 years' R&D experience.

6. **Safety Inspector** - One post.

Scale of Pay : Rs. 1640-60-2600-EB-75-2900.

Qualifications and Experience

(i) Intermediate/Higher Secondary/Senior Cambridge Certificate, Graduate in Arts/Science preferable.

(ii) A Diploma in Industrial Safety Training from a recognised institution with adequate experience in the application of safety measures in mineral and metal industries, heavy integrated pilot plants etc.

Age : 28 years, relaxable in the case of departmental candidates.

7. **Receptionist — One Post.**

Scale of Pay : Rs. 1400-40-1800-EB-2300.

Qualifications and Experience

Graduate in Arts or Science with adequate experience of having worked as Receptionist in a research/Govt./Industrial organisation of repute, should be smart and able to converse fluently in English and Hindi. Knowledge of foreign languages desirable. Preference may be given to female candidates.

Age : 28 years, relaxable in the case of departmental candidates.

8. **Cost Accounts Clerk** — One post.

Scale of Pay : Rs. 1200-30-1560-EB-40-2040.

Qualifications and Experience

Candidate must be a Graduate in Commerce/Science with atleast three years experience in Cost Accounting, estimating and accounting procedure in a reputed workshop.

Age : 28 years.

General Information

(1) Posts 1-5 and 6-8 carry usual allowances as admissible under the Central Government rules. CSIR Fellows are entitled to consolidated amounts only, plus the usual House Rent Allowance and Medical benefit as per rules.

(2) Advance increments for candidates will be considered by the Selection Committee on the basis of their credentials and performance.

(3) Application form for all posts **except post 8** are obtainable by post (Free of cost) from the Administrative Officer, National Metallurgical Laboratory, Jamshedpur-831007, by sending a self-addressed and stamped envelope (Rs. 1.40 paise) of 28 x 13 cm. Completed application forms together with non-refundable application fee of Rs. 8.00 (Rs. 2.00 for Scheduled Caste/Scheduled Tribe candidates), in the form of a Demand Draft on the State Bank of India, NML Branch, Jamshedpur, drawn in favour of the Director, National Metallurgical Laboratory, Jamshedpur, alongwith attested copies of certificates/testimonials etc., should reach the Director, National Metallurgical Laboratory, Jamshedpur - 831007, on or before **20th May, 1987. Candidates applying for more than one post should submit separate applications alongwith the prescribed application fee specifying No. of advertisement and post applied for.** Incomplete applications and those received after the last date will not be **considered.**

(4) Applications for post 8 for which no application fee is required, may be sent on plain paper giving qualifications, experience and age etc., duly supported by copies of certificates/testimonials etc., (not originals) and should reach the Director, National Metallurgical Laboratory, Jamshedpur - 831007, by **20th May, 1987**.

(5) Details of the job description/requirements will be made available alongwith the Application Form on request including general conditions of service.

(6) Reservation of posts for Scheduled Caste/Scheduled Tribe communities are available as per rules, for the posts in the grade of Rs. 2200-4000 and below.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

Masab Tank, Hyderabad-500 028 A.P.

No. C3/232/84-87 **Dated : 27-3-1987**

Applications in the prescribed form are invited for the following posts in the University:

I. Professors in Painting, Commercial Art and Sculpture.

Scale of Pay : Rs. 1700-60-2,120-65-2,250 (State Scale).

II. Assistant Professors in Painting, Commercial Art and Sculpture:

Scale of Pay : Rs. 1400-60-2000 (State Scale).

The application forms and instructions to candidates will be supplied on requisition accompanied by:

(i) A crossed Indian Postal Order or Demand Draft for Rs. 25/- (Rupees Twenty five only) payable to the Registrar, J.N.T. University, Hyderabad - 500 028, A.P. (Rs. 5/- Rupees Five only in the case of SC/ST candidates) dated not earlier than **26-3-1987**.

(ii) A self-addressed envelope of size 22 x 10 cms. carrying Postal stamps of Rs. 3/-. (Rupees Three only).

Last date for receipt of requisition for application is **30-4-1987**.

Application forms completed in all respects accompanied with a registration fee of Rs. 25/- (Rupees Twenty five only) in the form of Indian Postal Order or Demand Draft payable to the Registrar, J.N.T. University, Hyderabad should reach the undersigned on or before **30-4-1987**.

The registration fee in the case of SC/ST candidates is Rs. 5/- (Rupees Five only).

Persons who have already applied in response to earlier advertisement of even **No. Dated 19-7-1984** of this University, for the posts of Professor in Painting, Professor in Commercial Art and Assistant Professor in Sculpture need not apply again.

The reservations for SC/ST/BC Candidates in respect of appointments to the posts of Assistant Professors will be followed as per rules in force.

K. Chandramouli
REGISTRAR I/c

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House,
16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429.
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

D52

University News

MONDAY, APRIL 20, 1987

Rs. 1.50

VII ANNUAL CONVOCATION
ANNA UNIVERSITY
24TH FEBRUARY 1987

. A. Ramachandran (third from left), Under-Secretary-General & Executive Director, U.N. Centre for Human Settlements (Habi Nairobi, Kenya, delivered the convocation address at the Anna University, Madras. Seen on his right are Shri S.L. Khuran Governor of Tamil Nadu & Chancellor and Dr. V.C. Kulandaiswamy, Vice-Chancellor of the University.

Tata Institute of Fundamental Research

HOMI BHABHA ROAD, BOMBAY 400 005

Advertisement No. 11/87

Invites Applications for Admission as RESEARCH SCHOLARS for the year 1987-88

The Institute offers a programme of Graduate Study in several branches of Physical, Chemical and Computer Sciences. The prime objective of this programme is to train scholars in the methodology of fundamental research. The work also enables the scholar to earn a Ph.D. degree of Bombay University. Selections for the academic year 1987-88 will be made on the basis of interviews to be held in Bombay between **July 1 and July 15, 1987**. The academic programme will start in the first week of **August, 1987.**

The basic requirements for admission are exceptional talent and motivation for research. Candidates who are keen to pursue a research career and who have an outstanding academic record, need apply. Candidates should have completed Master's degree (M.Sc., M. Tech. etc.) before joining this programme (students who have appeared for the Master's degree examination, may also apply). For Physics, candidates with Master's degree in Applied Mathematics or Astronomy may also apply. B.E.'s and B. Tech's may also apply for Computer Science and Solid State Electronics. Exceptional B.E.'s and B. Tech.'s may also be considered for other areas, if they should be interested. For Chemical Physics, candidates with Master's degree in Chemistry, Physics or Biochemistry, may apply.

Admission is highly selective and during this year only a few candidates may be admitted in each of the following areas:-

Theoretical Studies : (Theoretical high energy physics; nuclear theory; condensed matter theory; theoretical astrophysics).

Experimental Space Sciences and Astronomy : (Cosmic rays and solar physics; X-ray and gamma ray astronomy; high energy astrophysics; optical and infrared astronomy; radio astronomy; gravitation).

Experimental High Energy Physics : (High energy cosmic rays; experimental high energy physics using underground detectors, bubble chambers and high energy accelerators abroad).

Experimental Atomic and Nuclear Physics : (Nuclear interactions, heavy-ion collisions using pelletron, nuclear spectroscopy; nuclear reactions, atomic collisions).

Experimental Solid State Physics and Solid State Electronics : (Magnetism; superconductivity; low temperature physics; semiconductor physics).

Chemical Physics : (Bio-inorganic chemistry; fast reactions; energy transfer; molecular biophysics; laser spectroscopy).

Computer Sciences : (Speech and digital systems; computer communication; theory of programming; experimental programming).

After completion of the programme, outstanding candidates have the possibility of absorption into the regular academic staff of the Institute.

More details about fields of study in each area will be supplied with the application form.

Financial Assistance : Research Scholars will be paid a fixed monthly honorarium of Rs. 1,400/-. Based on satisfactory performance, the honorarium may be raised to Rs. 1,600/- per month subsequently. Appointments are made for a year at a time but are normally renewable annually upto 5 years, subject to evidence of satisfactory performance.

Travelling Allowances : Each candidate called for interview, will be paid 1-1/3, railway fare each way by second class (not airconditioned) and a sum of Rs. 35/- as halting allowance for the day on which he/she is interviewed.

Applications : Applications in the prescribed form which can be obtained from the Administrative Officer (Establishment) on request alongwith 23.8 x 10.8 cms. self addressed stamped (Rs. 1.40) envelope should reach the Institute not later than **May 31, 1987.** Requests for the application forms will be entertained only upto **May 15, 1987**. In the application, the candidate must clearly specify his/her **area of interest.**

UNIVERSITY NEWS

VOL. XXV APRIL 20
No. 16 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor:
SUTINDER SINGH

LIBRARY & DOCUMENTATION UNIT
28 APR 1987
C.F.T.R.

Autonomous Colleges

While recommending the establishment of autonomous colleges, the Kothari Commission had hoped that by the 4th Five Year Plan atleast 50 colleges would be brought under this category. The tally in 1986, however, counted 21. The Programme of Action (POA) of the New Education Policy envisages that about 500 colleges should be developed as autonomous colleges in the 7th plan and the existing affiliating system might be replaced in due course. As is known, affiliating system arose out of the requirements of the colonial system of governance, which attracted voices of dissent from such stalwarts as Swami Shraddhananda, Gurudeva Tagore, Gandhiji and Zakir Husain, who tried to chart a national system of education as distinct from the common run of universities.

The Kothari Commission felt it necessary to classify affiliated colleges in term of the level of their performance in various fields, such as, quality of staff and students, research output, library and laboratory facilities, innovations in teaching procedures, etc. It, therefore, desired the University Grants Commission (UGC) to proceed with such classification and consider the conferment of autonomous status on outstanding colleges. The POA has endorsed this approach which seeks to decentralise the rapidly burgeoning university system.

Not unexpectedly, rumbling voices are being raised in opposition to this policy decision. The first argument advanced is that the universities, as at present constituted, are not prevented from reshaping the course contents, if they so choose, and therefore, nothing will be gained by transferring this power to the autonomous colleges. Second, it is feared that the administrative autonomy as contemplated would lead to the governance of the autonomous colleges by undesirable elements. And third, it is said that this would legitimize the charging of capitation fees and would debase the university system.

The criticism is ill-founded. It is well-recognised that the universities with enrolment of lakhs of students and hundreds of affiliated colleges tend to suffer from a sort of elephantisis and the remedy lies in decentralisation. As regards the composition of the Governing Bodies, surely, criteria could be laid down to ensure that distinguished academicians alone are inducted. The authority to mobilise financial resources should eventually result in attracting non-governmental resources for higher education and is, therefore, a welcome step.

The revised guidelines issued by the UGC, however, contemplate that the degrees will be awarded by the parent university on the basis of the results declared by the college concerned, whose name shall be mentioned in the diploma. There appears to be no justification for such a dispensation. It should reduce red tape, if the power to award the degree is also simultaneously conferred on the autonomous colleges. As the proposal stands, the role of the university is simply ornamental. In the final analysis, the reputation of the autonomous colleges will depend on the quality of their staff and the performance and marketability of their alumni, and it is reasonable to hold that they shall try not to forfeit it.

—*G. B. K. Hooja*

EDUCATION FOR WOMEN'S EQUALITY—I

M.S, Gore*

Prof. M.S. Gore, Former Vice-Chancellor, University of Bombay, delivered the Fifth J.P. Naik Memorial Lecture on the theme 'Education For Women's Equality'. We are pleased to publish the text of this highly analytical address for the benefit of our readers. The second and the concluding instalment of the lecture will be published in our next issue dated 27 April, 1987.

It has been suggested to me that I might speak on the theme 'Education for Women's Equality". This theme has figured, though briefly, in the education policy document prepared by the Government of India. I will attempt to spell out some implications of accepting women's equality as an objective to be furthered through the system of formal and informal education. It is not suggested that women's equality can be attained only or wholly through education, but rather that in the attainment of this social objective, as in others, education has also an important role to play. What is this role?

Concept of Equality

To be able to answer this question we need to have a relatively clear idea of what we mean by women's equality. We often speak of equality in terms of the different kinds of rights that must be available to women. For example, we speak of civic rights—that is the right to vote in elections to civic and legislative bodies and the right to contest an election to such bodies. We speak of equality in law—that is the right to function and be treated as an individual capable to taking decisions for oneself without being fettered by the judgement of the father, husband or other male elder in the family. We speak of economic equality—that is the right not to be denied work on grounds of sex; the right to receive equal pay for equal work, the right to inherit or possess property, the right to enter upon occupations traditionally considered unsuitable for women as in the armed forces or the police or, sometimes, managerial and administrative positions; and the right not to be restricted to certain occupations which were considered specially suited for women like nursing, school teaching and social work. We also speak, somewhat less specifically, of what is called social equality—and suggest thereby the right to equal opportunity for education on par with the sons in the family, the right to participate in familial decision-making and the right not to be ordered about by the male head of the family.

It should be obvious that some of these 'rights' can be conferred on women by a process of legislation. Thus, many of the rights implied in the concept of legal, civic or even economic equality can and have been legislated upon and, in theory, women enjoy these rights. But, in practice, the extent to which women exercise these rights and having exercised them actually attain equality depends on their own value framework, their readiness to assert the rights available to them, the degree of social mobilization on the issue and the immediate familial and social context in which they function. But, on the whole, it should be evident that while in the areas of legal, political, and, to an extent, economic equality, law may have an important role as a facilitator or a creator of opportunity it does not play the same critical role in the area of social equality. The factors of individual value framework, the degree of opinion mobilization and the immediate familial and social context have a much greater role to play in the area of social equality.

Role of Education

It was stated earlier that women's equality cannot be attained only through education. It needs to be said with equal validity that women's equality cannot be attained without education for such a change. This education may be formal or informal, it may be directly dilactic, analytic, merely information based or communicating its message through entertainment, but education in a wide sense is a pre-requisite for value change and without value change no new social objectives can take root.

The law can make it possible for a woman to vote, it cannot compel her to do so. It can even less ensure that she will vote freely without being influenced unduly by her husband, her father or any other elder male in the family. The law can prevent barriers from being placed against the entry of women into the formal employment market it cannot ensure that large numbers of women will seek to enter upon such employment.

---

*Former Vice-Chancellor, University of Bombay.

Like most movements, the women's movement began by emphasizing what government and the society must do to ensure the development of women—as individuals and as a group—to their best potential. This was both understandable and justifiable. While demands made on government are often specific and concrete—by way of demands for legislative protection or promotion or demands for creation of supportive infrastructures like creches, day-care centres, counselling and legal aid facilities, etc. The expectations and demands from "society" are generally vague. This is due to two reasons. For one, society is a nebulous entity; the group that makes demands is also a part of that society; and the type of demands made on society—as different from government—require not concrete structures or services but basically a change of attitudes and values. Whereas structures and services can be created according to a time-table depending on available resources, changes in attitudes are not subject to such programmed manipulation.

In the case of the women's movement the problems are also more complex. While industrial workers or agrarian labour form a relatively tangible group, women live in families consisting of men as well as women. The targets of their attack—the men—do not constitute a single or homogenous entity. Besides, the social ills that leaders of the women's movement fight against are perpetrated by men and women jointly. So the freedom that women seek has to be sought not only from men as a separate class, but also from women—older women, more conservative women, unliberated women—who are part of the same primary group.

This situation makes the outward oriented strategy—where the enemy is clearly located outside the group—less effective. The problem is not primarily of bringing about a change in the secondary structures of society, but of bringing about a change of attitudes both in men and women. This calls for 'education'—education of both the men and the women in the new value framework and the new social arrangements that are visualized.

Legislation can regulate to some degree the contractual relationships in the secondary social groups, the factory, the office, the shopping establishment, but it cannot achieve even that measure of success in changing the role perceptions and role interactions in the primary group of the family. In this group relationships are governed more by cultural traditions than by rational legal considerations. If women's status has to change, the processes of socialization within the family, in the school and in peer groups will have to change. The role objectives for men as well as women are set by religion and custom, by law, by current fashion, by mass media and, in the last analysis, by the demands of the changing techno-economic environment; but this does not mean that change in any one of these will immediately communicate itself to all individuals and lead to a smooth change of perception or change of behaviour pattern.

If formal education is to sub-serve the purpose of assisting in the process of ushering in women's equality in our society it is necessary for those who support such a change to raise and answer certain questions. First, why do we want this change? Which are the target groups that are to be addressed through education to achieve this change? What are the specific social structural or institutional and individual behaviour changes that are desired ? How can these desired changes be incorporated in and communicated through education ?

Why Women's Equality?

The first of these questions—why do we want this change? Or, rather, why do we want equality for women in society may seem superfluous. It may even offend some that such a question should be raised at this stage or in this age. The fact, however, is that however self-evident the answer may seem to be it has not become so self-evident to large numbers of men and even women in our society. The answer may be as simple and yet as difficult to convey as the answer to the question "Why do we need education?"—a question which has obviously not been answered satisfactorily to millions of parents in rural areas who do not send their children to school or who do not help them to stay on in schools to complete even primary education.

Let us attempt an answer to the question, "Why do we want equality for women?" I dare not ask this question to my wife and certainly not to my daughter. But, if I had asked such a question to my mother I am not sure I would have been able to make myself understood. This need not mean my mother was servile, subjugated or even dependent but this whole notion of individual freedom and equality in relation to her husband would have made no sense to her in the manner in which we formulate it today.

What is our answer to the question, "why do we want equality for women?" One answer may be freedom and equality are the birth-right of every person: "They are as necessary to her as fresh air". Or, one might say following the Charter of Human Rights, every individual has the right to grow to his/her maximum potential and equality is one of the necessary conditions for such growth. A woman's identity need not be limited to being a housewife, to being a good cook and a good mother. She should have the opportunity to conquer new realms and find an identity of her own in the intellectual occupational world. I find this answer satisfactory, but I want to ask a further question so that, hopefully, we arrive at greater clarity. The question is "what is our notion of full growth of personality?" Our answer will be, "We can't say, it depends upon what the individual wants to do and is capable of doing". My comment on that answer is that the individual is really not as free as we imagine — not even in a free society. What the individual wants to be, what the direction and level of her aspirations is likely to be is also greatly culturally conditioned. Whether a woman wants to mould herself in the image of Tara, Mandodari, Seeta or whether she wants to be another Gloria Steinmem is influenced—I won't say determined— by the world she lives in. Obviously today the area of choice has widened and the models to choose from have increased. But the very idea of individual choice, of a greater degree of individuation of personality, of finding a new identity as a preferred goal is a product of the modern age and it is a part of the philosophy of liberalism that arose in England as a concomittant of the break-down of the rural economy and rural society, the development of factories, the expansion of mercantile trade and the emergence of a middle class which had wealth but no links with land and the landed aristocracy. It was the fight for freedom and equality of this group, their right to franchise and representation in parliament that provided the context for the spread of liberal ideas. The urban and rural poor were not initially included in the category deserving civic and political equality nor were women. The French revolution added an edge to the claims of the poor and the two world wars which dragged women into the organized labour force established in the West their claim to civic equality.

For the educated elites in India liberalism came as an ideology that apart from its intrinsic appeal also stoked their ambitions and helped formulate demands for jobs, for representation, for Home Rule and finally for national independence. The promise of equality was a necessary condition for the mobilization of peoples of different castes and strata in the nationalist movement. By the time independence came women had established their claim to equal civic and political status by their active participation in the struggle for freedom.

To put the history of the development and acceptance of the idea of equality in this way need not minimize the crucial role played by social reformers and educators who were individually moved by their own idealism. But it helps to highlight the social context in which the ideas of equality and, later, of individualism and individual worth became accepted among the elite of India.

At the same time it helps us to see why in our dominantly rural society where the social context has not materially changed the liberal values of equality as well as individualism are unevenly spread and remain largely a verbal category with no corresponding life experience to match or support them.

When therefore we say tht the value of equality is self-evident we have to recognize that this may not be so. We can certainly say that equality is so important a condition for individual growth that it should be accepted as a core value in our culture and we should utilize education as one of the means to help inculcate this value in the younger generation. If we accept this latter position we need to spell out more clearly what equality for women means in day to day life for both men and women and in different social situations.

Education and Social Change

There is a belief that education is by itself supportive of social change. This need not be so. Much depends upon what the content of the educational message is and who the educators are. Otherwise, most leaders of public opinion whether of the right or of the left, whether 'progressive' or 'reactionary', whether pro-women's movement or against are all drawn from among the educated—i.e. from among those who have had formal high school and college education. It is, therefore, important that if we expect education to be a means of promoting women's equality we should ensure that in the text-books and in co-curricular and extra-curricular activities there are themes and topics which will make the young think and discuss the subject. While we need not, in fact should not, promote particular stereotypes of a free and equal woman we should be able to indicate that equality is an important social value that needs to be realized in our society in respect of men-women, rich-poor and as between different ethnic, religious and linguistic groups. We should be able to explain the various aspects or dimensions of the concept of equality in civic, political, economic and social-familial spheres of life. Up to this point the task of promoting the concept of women's equality through education may be relatively simple. What we are attempting is to put forth the idea at the rational, intellectual level and it is possible to find teachers who accept it and can speak about it competently.

But, as we have seen, social change involves not only an intellectual acceptance of alternative values or extension of existing values to new areas of life but an understanding of and a readiness to modify existing attitudes and behaviour patterns. This is more difficult to achieve. The situations are many and the attitudes involved are attitudes not only of men but of women as well. There is a simplistic assumption that if men can somehow be made to give up their authoritarian attitudes and the women can give up their emotionally dependent, submissive attitudes the problem of women's equality can be solved. No one has said so far how this is to be achieved.

Besides, authoritarianism and submissiveness are not just situation—specific attitudes they are attributes of personality. They are also not sex-related attributes. There are aggressive and submissive men and also aggressive and submissive women. The differentiation is more valid at the cultural level where certain cultures allocate the dominant role to men in certain situations or spheres of life and expect women to accept male authority. It should be possible to identify such situations or broad areas of life where culturally the authority relationships between men and women are specified and generally observed and then say what modifications in attitudes and behaviour patterns would be necessary in the context of the new egalitarian framework that we have formally accepted.

Attitudinal and Value Aspects of Change

By way of an illustrative-exploratory exercise let us take up the limited area of social equality. We may assume that we know what we mean by legal, political and economic equality for women. These are areas involving largely secondary groups and upto a point the relationships are governed by law and by formal, institutional rules. But each of them has an unregulated social facet consisting of the informal relations between members of formal groups. We may return to it later.

In the sphere of social equality let us begin with the right of girls to education. In the formal structure of education—i.e. in schools and colleges—this right is protected by the norm that no person is denied admission on the ground of sex. The state may even go further, as many states have done, by providing an incentive to the parent to send his daughter to school by way of abolishing fees for girl students upto the S.S.C. stage.

But on the familial side the recognition of the right of the daughter to education involves several attitudes. To begin with parents must accept that they have an equal obligation to educate a daughter as they would a son. This would mean not only educating her for the traditionally accepted and less expensive Arts degree, but for Science, Commerce, Medicine or Engineering depending upon the daughter's abilities and interests. This is not as simple as it sounds. Family resources for education are limited and the education of sons is also supported with some strain by middle class parents. And even among some parents have often to choose who should be supported in higher education.

The question of educating a daughter immediately raises other questions. Whom does this additional expenditure benefit—apart from the daughter herself. The parents see this as a potential benefit—if at all—to the daughter's husband's family. This is looked upon as an addition to the expenditure that the parents have to incur on a daughter's marriage—whether or not they pay a dowry.

Thus expenditure on children's education is partly looked upon as an investment or contribution to social security. Idealistically, however, we describe education as the opportunity for the young to discover themselves and to develop their potentialities—apart from equipping them for a profession or some type of employment. The parents normally tend to emphasise the occupational goals in the case of the sons and the liberal goals in the case of the daughters.

This in turn is further related to the perception of male and female roles in society. Apart from the fact that males are expected to become breadwinners and females the mother-housewives, there is the further differentiation that while sons are expected to support their parents in their old age, the daughters are expected to live in the husband's household and serve the parents-in-law.

There is nothing new in what I am saying, but these traditional social attitudes which differentiate between male and female roles are not consonant with the new expectations that women should have equal opportunity in education and that they should have the freedom and the opportunity to participate in gainful occupations.

This is not only a question of parental attitudes. It also involves the attitudes of the young toward education and their adult roles. In a recent article in an American Journal (*Commentary*, August 1986) I came across a statement made by one of the witnesses in the course of Congressional Hearings on Sex Equality in Vocational Education—1981. I quote it because it highlights the differences in role perception in the younger generation between boys and girls.

> "We are beginning to see that younger female students are recognizing the fact that they do have to work and they are beginning to plan for those careers. . . The younger males, however, are still seeing themselves as the sole breadwinner. . . That presents a conflict. . . These conflicts are there and no one has helped to train them or let them understand that it is OK to have alternative life styles".

[To be concluded]

TEACHERS IN HIGHER EDUCATION

B.H. Desai*, A.C. Brahmbhatt* and V.A. Pathak*

Introduction

According to Alex Main, a teacher is supposed to work as an activist, a reflector, a theorist as well as a pragmatist. He is the person who himself actively seeks guidance on the structure of his learning, and chooses teaching methods which offer structure to his students. The teacher is an inspirer and a promoter of all noble qualities in each student. A good teacher is a friend, philosopher and guide.

Past Scene

In the immediate pre-independence period and thereafter, the education system merely produced the people demanded by the administration in general. It aimed at producing the junior and senior clerks for the administration. As a result, only the liberal education remained in focus at the higher level, wherein the role of a teacher was confined only to a classroom teaching adopting a lecture method. The salient features of the method of teaching were oratory of a teacher having no lasting impression, non-participation of students in learning process, total absence of rapport between a teacher and a taught, and finally examination-orientation on the part of the students.

Over a period of last four decades we have witnessed quantitative expansion in terms of number of universities, number of colleges and number of faculties like Physical Sciences, Law, Commerce, and finally Management. In spite of this, we have witnessed very few qualitative changes in the educational system and therefore, the role of a teacher has essentially remained the same.

Present Scene

The present role of the teacher calls for a serious re-examination and a review as to how efficiently it responds to the present and future demands that might stem from environmental changes, rapid technological development and industrial growth. Demands are varied and a teacher has got to effect a sea change in his role to meet them. The improvement in his role can be brought about by the following:

(i) He should not tend to uncritically accept authority in any field.

(ii) He should rid himself of hasty and myopic desire to cover a syllabus for a course neglecting the important tasks of comprehension of the course.

(iii) He should be uptodate with the latest developments in education theory and practice.

(iv) He should infuse new life in institutions.

(v) He should provide opportunities for experimentation.

(vi) He should be able to create continuing faith and enthusiasm for progress.

(vii) He should opt for self development through evaluation which means:

- (a) that all teachers should look at the effectiveness of their teaching;
- (b) that a critical examination of teaching skills goes hand in hand with examination of learning skills;
- (c) that a Teaching Improvement Specialist is a necessary aid to the process of assisting the teacher to focus on areas of improvement and to select strategies for improvement.

(viii) Seldin advocates the use of Faculty Growth Contract. Here the teacher spells out his own self development specifying goals for the career and work activities for a period of time. It results in a meaningful individual programme of improvement.

(ix) In addition to teaching and research, development of learning resource materials should be emphasized.

(x) .The staff Development Programme as suggested by Main could be of help to improve their ability to cope up with future problems, and to develop new and better ways of dealing with both, present and future problems.

(xi) He should actively participate in building up the curricula wherein the following matrix as given by Main would be helpful to check on the dimensions and directions of course objectives.

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*Department of Commerce, Gujarat University, Ahmedabad.

	Skill	Knowledge	Attitude
Teaching Assessing Tutoring Counselling Research Academic Planning Management			

From the matrix developed by Main we can observe that:

(a) requirement of skill, knowledge, and attitude on the part of a teacher in connection with a particular course would differ in degree for different courses, e.g., teaching of accountancy requires more skills as compared to the teaching of languages, whereas in the teaching of science the emphasis is more on knowledge than attitude; and

(b) these requirements can be related to the different functions of a teacher, e.g., how much skill and knowledge would be essential in teaching a course, whether the assessment requires less skill and knowledge. How far motivation is an influencing factor in research, etc.

At the Threshold of 21st Century

An education system within which a teacher has to work plays a vital role in supporting him stand in face of varied demands at the threshold of 21st Century. The system must comprise the following:

(i) Higher education should be restricted to selected few. Such restricted entry should result in an improvement in teacher-taught ratio that enables a teacher to adopt varieties of teaching methods like case method, group discussion, seminars, project work, etc. A teacher's role in classroom teaching shall have an objective of developing analytical and thinking ability amongst students. Instead of students being passive participants he should make them active participants in class. The entire environment should be learning oriented with teaching being a support to such learning.

(ii) Rigid compartmentalisation of students as belonging to either sciences or humanities needs to be removed. The structure should be so designed that the system becomes multi-disciplinary.

(iii) There should be a system in which a teacher is a course designer and developer, instructor and evaluator of students' performance at the same time. This can be made possible only if colleges and universities' departments are made autonomous, leading to operational flexibility. This is always coupled with the highest level of accountability and excellence on the part of a teacher. There should be, of course, a system of reward and punishment.

(iv) The case for autonomy is much stronger in favour of colleges and university departments in this country. IITs and IIMs would not have flourished in the absence of autonomy.

(v) The success of an autonomous college or university department rests on the selection of excellent and highly qualified teachers only. There should be no compromise whatsoever on this issue. In addition, such autonomous bodies should have adequate infrastructure and financial support.

(vi) Universities and colleges have at present no interaction with the society in general and industrial world in particular. New knowledge or the requirement for new knowledge can be ascertained only if a living rapport is established by educational institutions. An environment is needed whereby a teacher can be deputed to industries to learn and be aware of their problems, such an interaction between industrial world and academic institutions will help improvement in course contents.

Such a rapport will be beneficial to both sides. The industries shall seek help of teachers and academic institutions for solutions of their problems and academic institutions can get finances from industries besides offering placements for the students.

Suggestions

(i) High qualifications in terms of academic achievement should be determined at the national level and strictly followed. The selection procedure should be reviewed. The teachers should first be approved by the autonomous colleges and departments by a system of seminar presented by the candidate before the existing faculty and students. At the second stage of selection, a candidate may further be examined by the expert committee again with the help of the seminar system rather than interview method. In short, effective role in selecting teachers should be played by existing faculty members of concerned bodies.

(ii) Continuous development of teachers should be made compulsory for all. A mechanism should be worked out for imparting training to the teachers wherein new learning becomes possible by attending seminars, workshops, training programmes, and even reading and writing assignments. University departments and national institutes should be assigned this task.

(iii) Classroom teaching should undergo substantial change. New methods including audio-visual aids should be adopted.

(iv) A teacher should be made responsible for designing course, updating the same and implement it effectively. Feed back from the students in respect of course content should be obtained. This presupposes autonomy to teachers in terms of course designing, teaching and evaluation.

(v) Evaluation of teachers by the peers and independent experts in the relevant subject on the basis of work done by him in terms of teaching workload, papers, articles, books and development of course and reading material should be accepted without hesitation.

(vi) Effective reweard system on an individual basi should be adopted. This can be in terms of promotion, additional increment, etc.

(vii) Minimum working hours for teaching and consultations with the students should be laid down. Physical presence of teachers in the institute be made compulsory. □

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Technology Policies for Developing Countries

Dr. Arcot Ramachandran, Under-Secretary-General and Executive Director, U.N. Centre of Human Settlements (Habitat), Nairobi, Kenya, delivered the Convocation Address at the 7th Convocation of the Anna University, Madras. In his highly perceptive address Dr. Ramachandran emphasised that technology was not new to us. What was new was the dimension of massive impact that has been imparted to technology by scientific research. The question which confronts us is whether we have the wisdom to direct the development of science and technology in directions which are genuinely worthwhile or whether we allow the feasible to become the permissible, whether we foreclose the future or succeed in opening new perspectives on human welfare and well-being. Excerpts:

Convocation

Technology has more than anything else shaped the world in which we live. From mankind's earliest beginnings, technology has been the main agent in the struggle upwards from subsistence towards a decent, healthy and longer life.

From the shaping of the first bone and flint tools, the discovery of the wheel, the lever, the plough, the use of fire, the smelting of the first metal ores, mankind has assiduously, and by empirical means, shaped a technology to serve its material needs. Technology, then is no new phenomenon. What is different today is that scientific research has given a new dimension to technology, a dimension of such massive impact that it not only offers infinite promise for the relief of poverty and hunger, but also as a consequence of distorted development threatens patterns of life, the ecology of the globe, and even the survival of the human race.

Modern science-based technology has been the main engine of growth and has constituted the major instrument in the process of industrial growth and development. It has been the major force in the dramatic growth of global interdependence and the interpenetration of societies. It has eroded the traditional insulators of time and space and has changed man's notion of resource frontiers, taking him into the darkness of outer space and into the depths of the oceans.

Modern technology has also given us, for the first time in history, a "world system" a "world economy", perhaps even a "world civilization". In fact, it can be demonstrated that the size of the world economy is a function of the state of technology, and in particular of the possibilities for transport within its bounds. The "world system" has also given us "world problems." It is true that mankind has always known war, hunger, poverty, ecological disruption and resource scarcities. Until comparatively recently, however, these were not world problems. They could not become so because there was no world system to account for their global scope. Today problems are made global by a world system which, shaped by the forces of science and technology, has effectively integrated its component parts.

The revolution in communications, information processing and transportation has undermined traditional concepts of sovereignty and security and reshaped the environment in which international political and economic relations are perceived, formulated and conducted. The spread and complexity of modern technology has also eroded the power of those charged with national decision-making.

Since most modern technology is developed in the companies of the industrially developed countries, it has elevated their influence to a point which often exceeds the capacity of governments to control it. The concentration of the sources of technology may clearly be such that no more than a very limited number of people are able to decide who is going to get what part of much advanced technology and under what conditions. The very complexity of much of modern technology has also increased the influence of those who purport to understand it. In today's industrialised countries, business executives rub shoulders with scientists and engineers in the corridors of power.

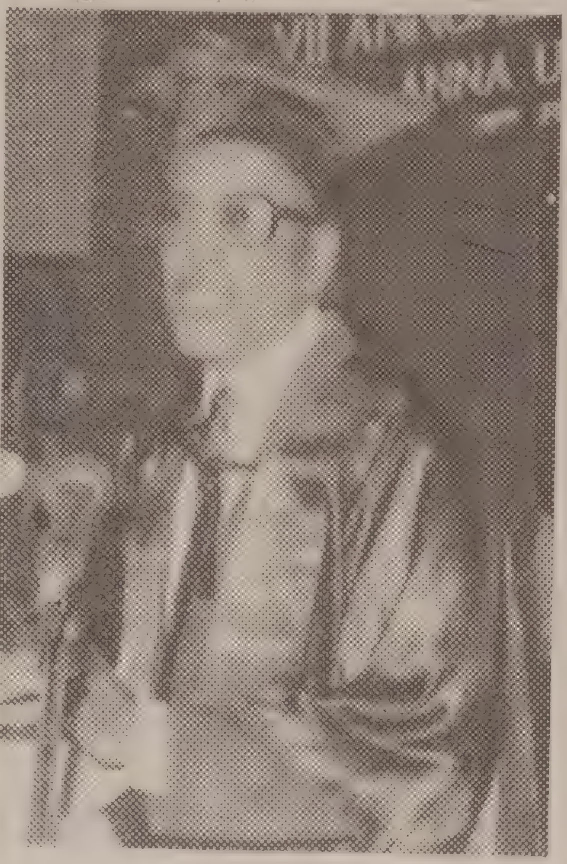
Not surprisingly, the importance of technology is recognized by those in the North and South, East and West. Few disagree that technological developments and the pace and direction of technical change are crucial to understanding the kind of future mankind is to have; whether indeed it is to have any future at all. Whether the need is more food, better education, improved shelter and health care, increased industrial output, or more efficient and safer transportation, technology will play a vital role. The question which confronts us is surely whether we have the wisdom to direct the development of science and technology in directions which are genuinely worthwhile or whether we allow, as we have done to date, the feasible to become the permissible, ranking "can" higher than "ought"; whether we foreclose the future or succeed in opening new perspectives on human welfare and well-being.

The posing of this question leads me to the core of my remarks before you today, and these are concerned with the technology policies that developing countries, like India, must adopt to face the development challenges of the coming decades, to compete in an increasingly crowded international economy, and to meet the demands for social and economic improvement—for jobs, goods and essential services—of rapidly expanding populations.

The crafting of such a policy is a complex exercise, and requires not only an understanding of national development needs and priorities but also of the consequences, especially the economic and social impact of adopting a particular technology policy, as well as of the overall relationship between technology and development.

In its national context, technology comprises a system of knowledge, skills, experience and organization required to produce, utilize and control services and the tools which we can call techniques. This technique-centred part of the social system is critical to development for three main reasons: It is a resource and the creator of new resources; it is a powerful instrument of social control and it bears on the quality of decision-making to achieve social change. Technology is not merely a mode of production and therefore neutral. It incorporates and reflects value systems. It embodies deeply-rooted assumptions about the organization of knowledge, space and time, of human relations and relations with nature.

Clearly, technology both embodies and perpetuates structures, both national and international. It is both an agent of change and of values. It can promote equality of opportunity or systematically deny it. Because technology and social processes are organically linked, reinforcing each other in both material and other ways, it follows that choices concerning technology imply choices concerning a type of society. It follows also that society imposes limits on the choice and development of technology. Technological development and social change are part of the same process. You can't have one without the other. For this reason, technology and technology policy is a pre-eminently political matter requring judicious and thoughtful decision-making.


Dr. A. Ramachandran delivering the convocation address

In the formulation of technology policies and technology development, developing countries have little time left for speculation. The urgent task is to bring some of the benefits of modern technology to the hundreds of millions of people who live in a world of hunger, disease, soul destroying poverty and premature death — a world left untouched by the miracles of modern science. In addition to using technology to raise the living standards of the poor, they must also seek to use it to combat the ever-present risk of disaster.

Moreover, particularly in the evermore competitive international economic environment of the last decade, developing countries have become acutely aware of the importance of technology in the process of development. They know that without a capacity for technological change and innovation they are condemned to poverty and stagnation. Their attempts to shape meaningful strategies of change, however, are forever, running around on the rocks of technological dependence.

The technological dependence of the developing world has many dimensions and aspects. At one level it results from the fact that the source of modern technology is highly concentrated. The United States of America alone at present supplies 55 to 60 per cent of all traded technology and 80 to 90 per cent of the technology acquired by developing countries comes from the industrialised countries.

Clearly there can be no such thing as complete technological independence. But there must be more technological self-reliance. For a developing country this must include the capacity to unlock the code of modern technology and to stamp it with the societal imprint of a developing country, reflecting actual economic and social condition and development needs and priorities. It must go well beyond the capacity to regulate the flow of imported technology, and the mainspring of such a policy must be an autonomous capacity for innovation. This requires much more than formal arrangements, new institutions and programmes. It requires the mobilization of creative energies and problem-solving capacities at all levels, from large industrial enterprises to small peasant communities. In particular, it requires that developing countries take a conceptual and qualitative leap towards a richer concept of "blending" of new and high technologies with traditional economic sectors.

Such an approach is needed precisely because in a number of developing countries, India among others, the traditional productive and service sectors account for a significant proportion of employment and income generation. The aim of such a blending process would be to make use of recent breakthroughs in the ongoing technological revolution, particularly micro-electronics, process and information technologies, new energy sources, biotechnologies and new materials, in order to rejuvenate sustainable traditional sector. This process should go beyond the mere prolongation of the phase of maturity for existing productive and service activities, and aim at increasing their capacity for rapid innovation and creativity and to increase their competitiveness both in the domestic and international markets. Thus the blending of new technologies with traditional sectors, such as agriculture, textiles, footwear, food processing, among many others, would aim not at a reduction of levels of employment, but rather, by making traditional sectors more competitive and increasing the quality of goods and services, expand their capacity for employment. Such a policy would also be selective in character, targetted on those bottlenecks and current deficiencies in the productive process which could speedily, and in a cost-effective manner, increase both productivity and quality, for it is clear that massive substitution of the present set of technologies with new ones is not viable from an economic point of view; nor would it be desirable from a social perspective.

The integration of new technologies in traditional productive sectors is receiving increasing attention by research institutes, as a viable and promising approach which developing countries may wish to adopt as part of their macro-development strategy. Although much of the research work on the subject has only just commenced, some important observations on the subject and significant policy issues have emerged.

To begin with, technology blending is focussed on newly emerging technologies. Developing countries should take advantage of their position as late-comers to adopt the most recent technological breakthroughs in order to leapfrog previous stages of technological development in order to increase both productivity and their competitive edge. It also does not aim at the replacement of traditional production methods. Rather substantial elements of the prevailing techniques of production should remain after their blending with frontier technologies in order to minimize the disruptive impact of their introduction.

Technology blending is not identical with intermediate techno-

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logy, as intermediate technology is characterized by small incremental improvements. Technology blending involves a more sizeable quantitative and qualitative jump, and a greater need for institutional changes in the traditional sectors which will be the immediate targets. Moreover, the initial investments costs will also be higher than in the case with intermediate technologies.

For these reasons, the traditional activities suitable for the blending process would have to be carefully identified to justify commensurate social and economic returns. Therefore it would be necessary to enquire whether blending in a particular sector or industry would improve productivity at a reasonable cost-benefit ratio; whether the learning necessary to operate the blended technology is feasible, given the training and other characteristics of the operators; whether the maintenance capabilities are provided for locally; and also whether the learning process can have multiplier effects.

Technology blending must also be applied in such a fashion as to release the innovation potential of those working within the selected traditional sectors and must be supported by a coalition of interests — Government agencies, financial institutions, producers and traders, co-operatives, individual entrepreneurs, and private and public enterprises — in short by all who have, as a defined purpose, the restoration of vitality to traditional production and service activities.

Technology blending must also have as its final goal the creation of a self-sustaining and flexible process of technological change and innovation supported at the government level by a network of technological support services; by a policy environment conducive to technology blending; and by a development policy that identifies priority economic sectors suitable for technological modernization.

But I should like to add a word of caution. Not all new technologies are equally suitable to blending with traditional sectors. Of particular relevance are those new technologies that have a relatively high diffusion capacity and transportability. For instance, software generated for a specific use in one location could be used with suitable adaptation to fit the new situation; computerized textile and leatherware designs developed for one set of firms and atrisans could be adapted for other groups that employ different materials; invitro cultures of vegetables developed at one site could be used for wider propagation; and enzymes and yeasts developed under strict sterile environments, which are difficult to replicate, could be used for production in many different locations.

Many of the new emerging technologies also allow for the development of decentralized, small scale and efficient activities, achieving productivity levels that in the past were possible only with large scale or mass production. Significant quality improvements have also been possible by these new technologies, particularly through the application of microelectronics in manufacturing activities. The example of numerically controlled machine-tools indicates the wide scope of blending advances in microelectronics to a variety of traditional sectors such as textiles, metal working, footwear and wood working.

In addition, there are many ancillary and support activities that are common to a variety of traditional sectors, and in which new technologies could be most effectively blended. These include telecommunications, where innovations, such as the use of computers, have created a new information environment in which productive tasks can proceed with greater efficiency; the generation and conservation of energy, where photovoltaic systems are providing decentralized and reliable sources of power, and where microelectronic devices are helping in load control for small hydropower plants and in reducing heat waste in textile mills; and administrative support activities, where microcomputers are keeping track of records, facilitating, accounting and controlling inventories.

But these new technologies often require high initial investments and a variety of technical skills and disciplines for their proper development, adaptation and use. Therefore, it may be appropriate to consider the central provision of new technologies and of the services associated with them, while allowing for and promoting their dispersed and widespread use. Finally, the investments and the co-ordination required for a policy of technology blending cannot be left to market forces alone. It requires government intervention to promote and to financially support the blending of new technologies with traditional sectors, at least initially, and to bring such an enabling role in harmony with a development strategy that takes account of world economic, technological and scientific trends.

Government intervention will also be required to establish the institutional network to support this blending strategy, consisting of a wide range of interested public and private organizations and institutions including, of course, institutions of research. Moreover, greater attention must be paid to the speedy incorporation of technological innovations in the productive process, which implies a more effective link between research institutes and economic sectors, or, the establishment of research units with individual industries or branches of industry, so that the solutions developed are both quickly incorporated into the production process and truly meet the immediate needs of a particular sector.

Technology blending should not be considered a panacea for all development challenges and problems. But for a country like India, with a large traditional sector of great potential, it does offer an avenue which offers at least the hope to speed its development, compete more effectively in the world economy, and to increase the welfare of its people. It offers an opportunity to make use of the ongoing world technological revolution without massive social and economic disruption and dislocations, and it offers a way between technological and economic stagnation and a wholesale adoption of external technology involving automation which may or may not be able to either increase employment levels on the scale required or to fulfil the promise of quick and rapid economic growth.

In the path to economic and social development, the key question that has to be answered is: What do we keep of the old, and what do we take of the new? How do we maintain our place in an everchanging world economy without completely breaking with what we value in our own society? Answering this question in the form of imaginative development policies is an intellectual and creative challenge of immense proportions. It is my hope that you in your future endeavours will meet that challenge and that as a consequence of your efforts this country and this people will prosper.

In closing, let me leave you with a quotation which succinctly summarizes all my remarks before you today: "Why does the magnificent applied science which saves work and makes life easier bring us so little happiness? The simple answer runs: Because we have not yet learnt to make sensible use of it." □

We Congratulate......

Dr. Devendra Kumar Sharma who has taken over as Vice-Chancellor of the Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur.

Third World Academy Fellowships

Third World Academy of Sciences, established to facilitate and promote mutual contacts of research scientists in the Third World and to further relations between their scientific institutions, awards fellowships to scientists of proven research ability to enable them to pursue research and/or undertake lectureship by working with colleagues in developing countries other than their own. Fellowships will normally be awarded for a minimum period of six weeks and are only provided for visits within the Third World. The fellowships will cover international travel to the host country and back and the visiting fellows will be expected to obtain the cost of their living expenses from local sources. However, a number of grants will be awarded by the Brazilian National Council for Research, the Chinese Academy of Sciences, and the Indian Ministry of Science and Technology to cover living expenses of visitors to scientific institutions in Brazil, China and India respectively. The International Centre of Insect Physiology and Ecology (ICIPE) in Nairobi, Kenya, the Commissariat General a l'Energie Atomique in Kinshasa, Zaire, as well as the Institut Malgache de Recherches Appliquees (IMRA) and the Centre Regional de Recherche of WHO in Antananarivo, Madagascar, will also cover living expenses for a number of visitors to their laboratories.

Applications are considered by the Academy throughout the year.

Further information can be obtained from The Executive Secretary, The Third World Academy of Sciences (TWAS), C/o International Centre for Theoretical Physics (ICTP), P.O. Box 586, 34100 Trieste, ITALY.

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
May 9-10, 1987	**National Seminar on Physical Fitness and Sports Standards in Universities**	**To identify various problems impinging upon sports performance and to deliberate on issues having significant bearing on mass awakening and motivation for promoting sports and physical education.**	**Association of Indian Universities (AIU) in collaboration with Mohanlal Sukhadia University, Udaipur.**	**Shri G.S. Sivia, Dy. Secretary (Sports), Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi - 110002.**
May 19-21, 1987	XVIII Indian Sociological Conference	Theme: Sociology and Social Transformation in India.	Department of Sociology, North-Eastern Hill University, Shillong.	Prof. M.N. Karna, Organising Secretary, XVIII Indian Sociological Conference, Deptt. of Sociology, NEHU, Shillong-793014.
June 1-15, 1987	Course on Computer Applications in Social Sciences	To expose the participants to fundamentals of computer, computer processing, FORTRAN Language and foundation of data processing and quantification methods.	Centre for Social Studies, Surat.	The Course Director, Centre for Social Studies, Gujarat University Campus, Surat - 395 007.
June 1-30, 1987	Summer School in Plasma Physics	To give broad exposure of plasma physics to the students of M.Sc. in Physics and fresh research scholars	Department of Physics, Ravishankar University, Raipur (M.P.)	Dr. S. Guha, Convener, Dept. of Physics, Ravishankar University, Raipur (M.P.)
July 3-4, 1987	National Symposium on Development of India's Mineral & Fuel Resources	To discuss the entire spectrum of mineral sector—metallic and non-metallic minerals, coal, ground water, oil and natural gas.	Department of Applied Geology, Indian School of Mines, Dhanbad.	Prof. K.L. Rai, Convenor, Diamond Jubilee National Symposium, Department of Applied Geology, Indian School of Mines, Dhanbad - 826004.
July 22-24, 1987	15th National Conference on Fluid Mechanics and Fluid Power	To bring together researchers and designers, working in diverse fields like Mechanical, Civil, Power, Aeronautical and Chemical Engg. besides Mathematics and Physics to review the state of the art and the recent developments.	Regional Engineering College, Srinagar in collaboration with National Society of Fluid Mechanics and Fluid Power.	Dr. A.M. Bhat, Organising Secretary, 15th National Conference on Fluid Mechanics and Fluid Power, Department of Mechanical Engineering, Regional Engineering College, Srinagar 190 006.
September 6-19, 1987	**International Seminar on University Administration**	**To consider the impact upon administration of changes in both the external and internal environment of universities and the development of appropriate styles, structures and management in administration**	**The British Council, London (to be held at the University of Salford, Salford, England)**	**Mr. Stuart R. Bosworth Registrar, University of Salford, Salford, England M5 4WT.**

Screening New-Born Babies for Genetic Disorders

An Indo-U.K. Collaboration Project

During the course of the last forty years there has been a marked change in the patterns of disease seen among children. The introduction of multiple inoculation programmes has led to a drastic reduction in the incidence of severe childhood infections, such as poliomyelitis, diphtheria and whooping cough, and many of the other formerly common microbial conditions also have proved to be readily treatable with antibiotics. The remarkable advances in preventing and curing previously lethal diseases has however served to spotlight a further source of abnormality in children, namely, genetic disorders, which are known to affect 4% to 5% of all infants born in the U.K. Among Indian children inherited diseases are still rare, by comparison with the very large numbers who suffer from infectious and nutritional disorders. However, as has been painfully learned in the U.K., the rapid progress being made throughout India in combating today's common ailments will almost certainly be accompanied by a future increase in the relative importance of genetic disorders as causes of childhood death and abnormality. In particular, children born to marriages between close relatives could be regarded as at risk, since they are more likely to receive identical genes from each parent and so may inherit rare mutants in double dose.

With these evolving problems in mind, a screening programme for the detection of inherited aminoacid disorders was established during 1980, based in the Indian Institute of Science, Bangalore. The project is a joint India/U.K. collaboration directed by Professor N. Appaji Rao and Dr. A. Radha Rama Devi of I.I.Sc. and Dr. A.H. Bittles, King's College, University of London. Thanks to generous financial assistance from the Indian Council of Medical Research and Indian National Science Academy, and the Overseas Development Administration, British Council and Royal Society, the entire programme is run without charge to the parents. With the ready cooperation of local clinicians, a total of 90,000 babies have been screened, born in 50 hospitals and nursing homes in Bangalore and Mysore. The test protocol itself is remarkably straightforward and merely requires taking three drops of blood from the toe of each new-born. The specimens are then analyzed by thin layer chromatography for disorders such as phenylketonuria and tyrosinaemia which, if untreated, can rapidly cause severe mental retardation and a variety of physical defects. Happily, the vast majority of babies have been found to be unaffected and a computer analysis conducted on data collected from the mothers of the first 65,000 babies born revealed that, contrary to expectation, overall deaths among the children of inbred marriages differed only slightly from the rates observed in their non-consanguineous counterparts. Also of note was the fact that the proportions of male and female babies born to consanguineous and non-consanguineous parents were similar, as were the rates of twin births. These findings relating to possible effects of consanguinity are of considerable importance to the peoples of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu and to many Muslim groups all of whom favour marriages between close relatives. Nevertheless, a linked study on over 400 sick children clearly illustrated the problems which can arise in individual, inbred marriages. Specific genetic disorders could be diagnosed in 15% of the children and in this group there was a significant excess with parents who were close relatives. It is in this minority of families that genetic counselling would be of most value and have its greatest effect. Therefore one of the agreed, future aims of the overall programme is to introduce testing for the diagnosis of genetic disorders in the very early stages of pregnancy when therapeutic abortion to prevent the birth of an affected baby may be most acceptable to the parents.

Meanwhile, the range of analyses has been extended to include methods for the detection of abnormalities in red blood cells, by cellulose acetate electrophoresis. Gene mutations which give rise to disorders such as sickle cell anaemia, thalassaemia and variants of the enzyme glucose 6-phosphate dehydrogenase are thought to be common in India, and indeed throughout all countries of South Asia. As these conditions can critically impair normal childhood development and may give rise to fatal haemolytic crises, reliable data on their incidence and effects are required as a matter of urgency. A further, significant area of recent progress has been in training specialist staff in the techniques available for genetic screening. For some time, laboratory instruction has been provided in I.I.Sc. on an individual, informal basis but in January of this year the first integrated workshop on methods of genetic analysis was held, backed by the National Biotechnology Board. During the week-long session, senior medical and scientific staff, drawn from hospitals and research institutes located nation-wide, were provided with a thorough grounding in laboratory methods appropriate to the genetic problems being faced in India.

Regular follow-up courses are planned so that the experience and expertise gained in Bangalore during the last seven years can be widely disseminated. At the request of the Commonwealth Association for Mental Handicap and Developmental Disabilities, a number of places on these courses will be reserved for participants from other South Asian countries and ultimately it is envisaged that training can be provided within India for staff from all developing Commonwealth countries.

[Contributed by A.H. Bittles]

Seminar on Environment Management

Mr T.N. Chaturvedi, Comptroller and Auditor-General of India said that collective consciousness about the increasingly negative effect of the environmental degradation was necessary to end the growing crisis of environmental management. He was inaugurating a symposium on "Environmental Management in India", organised by the Punjabi University's Department of Public Administration at Patiala recently.

Mr Chaturvedi said with the beginning of Industrial Revolution, the environment system started getting adversely affected, leading to a crisis of environmental management. The nuclear holocaust, he added, coupled with economic poverty, aggravated the situation. It is, however, only the misapplication of advancements of science and technology and attempts to conquer nature, that led to wars and conflicts all around, he said.

Presiding over the symposium, Dr Bhagat Singh, Vice-Chancellor, stressed the need for timely planning and foresightedness to neutralise the adverse effect of environmental suffocation due to scientific and technological advancements and said that Environmental management should be adopted as a "People's Movement" as it was everyman's concern. He expressed the hope that only science and technology will come to our rescue if it has created such " filthy" surroundings for us.

Academics from Panjab, Punjabi and Indian Institute of Public Administration and Magadh Universities participated in the deliberations of the seminar.

Training Teachers for Mentally Retarded

A regional training centre under the National Institute for Mentally Handicapped (NIMH) in Secunderabad is expected to come up at Bombay shortly to provide diploma courses in mental retardation to untrained teachers working in special schools and institutes for the mentally retarded in the west zone. The regional training centres (RTC) for the east, north and south zones have already been started at Calcutta, Delhi and Secunderabad respectively.

A three-year degree course in mental retardation, recognised by the Osmania University, Hyderabad, will also be started at NIMH, Secunderabad, from July 1987, where three trainees from each zone will be intially admitted to the course. While students for the degree course will be taken on the basis of an open selection, the trainees for the diploma course are sponsored by the voluntary agencies from among the untrained teachers employed in the special schools and institutes being run by them.

The diploma course trainees will receive a stipend, during the one-year training period, of Rs. 450 each for trainees having their own boarding and lodging arrangements, Rs 300 for trainees having only boarding arrangement and Rs. 150 for the day scholars.

In addition to the diploma course, the RTCs also conduct in-service training for the teachers and the placement officers. They conduct a four-week refresher course training for the teachers every year in May and similar training for the placement officers and others in June.

Coal Mining Appreciation Course

A course on 'Coal Mining, Coal Sampling and Quality Control' for Army Service Corps was organised at Indian School of Mines, Dhanbad during March 23-28, 1987.

During the one-week course, participants were exposed to the basic aspects of coal geology, coal characterisation, coal mining methods, coal production, coal preparation, quality control and sampling methods, occupational safety and health and coal handling systems. Besides faculty from the School, guest faculty were drawn from CFRI, Chief Mining Adviser, Railway Board, BCCL and SAIL (CCSO). A field visit was arranged for the participants including visits to underground and opencast mines, Wagon Sampling and Railway Weighbridge.

At valedictory function Brig. G.S. Grewal, Deputy Director-General, ST, Army HQrs., observed that the course was a success in making officers of ASC aware of problems of coal supplies. He hoped that such courses would be annual feature in future. Shri G. Padmanabhan, CMA, Railway Board stressed on perception of quality in coal and on the importance of suitable linkages in supplies to army. Prof. D.K. Sinha, Director of the School, in his address assured that the School would endeavour to improve upon the course structure in the light of the experience gained in the organisation of the first course and the suggestions received since then.

24 senior officers of Army Service Corps from different command areas and the Coal Cell at Calcutta participated in the programme. This was the first appreciation programme of this type organised by ISM for the Army.

Student Strength Under NSS Being Raised

The Government proposes to increase the strength of the students in the NSS scheme from 7.7 lakh to one million, during the Seventh Plan period.

During the summer vacation this year, over two lakh NSS volunteers will participate in the functional literacy programme—through Adult Education and non formal education among the masses. It was stated by Smt. Margaret Alva, Union Minister of State for Sports and Youth Affairs.

Smt. Alva also called upon the Indian Youth specially connected with the NSS to participate in a big way in the Special Camping Programmes to help the weaker sections to build their homesteads, as this year is being celebrated as "International Year of Shelter for Homeless" (IYSH).

Smt. Alva also appealed the coordinators of the NSS programmes to ensure that the youth are dissuaded from the addiction and abuse of drugs. This can be easily done by diverting their idle time towards the constructive programmes. They should be provided more and more opportunity to travel from one corner to the other of the country, this would give them better sense of understanding between different regions and culture, which is essential for character building. NSS can play a vital role at developing the personality of the students, she concluded.

Refresher Course for RDOs

The Punjabrao Krishi Vidyapeeth organised a Refresher Course for Rural Development Officers of State Bank of India recently. Inaugurating the course, Dr. R.R. Sinha, Director of Extension Education said that the Rural Development Officers could render their services in a very effective manner by establishing good rapport and developing confidence amongst the farming community. He stressed that the Rural Development Officers should develop courage and minute observation by which they could play vital role in rural development by helping the farming community to achieve alround progress.

Shri R.A. Koteshwar, the Branch Manager, State Bank of India, Akola, in his address said that to provide better service to the farming community and to achieve desired results, the Rural Development Officers, who are involved directly in financing the farmers for agricultural development, should have up-to-date knowledge of the recent technology to cover the agricultural activities under bank schemes. He appreciated that such refresher courses can really be helpful to understand the farmers in a better way.

The course was organised at Krishak Bhavan of the University at which about 40 RDOs participated.

Bhai Gurdas's Works in Hindi

Dr. Jodh Singh, Reader in the Department of Encyclopaedia of Sikhism, Punjabi University, Patiala, has translated the works of Bhai Gurdas into Hindi. The 700-page work contains the text in the original Punjabi alongside its transliteration into Devanagari and translation into Hindi prose. Published by the Bhuvan Vani Trust of Lucknow, the work will be of immense use to the Hindi scholars in familiarising themselves with the vision of Guru Granth Sahib.

Bhai Gurdas, the first exegete of the Sikh theology, whose works are known as "key to the Guru Granth Sahib", worked as an amanuensis to Guru Arjan Dev when the latter compiled the Sikh Scripture in 1603-04.

Bhai Gurdas in his *Varan* or ballads in Punjabi and *Kabitt Savaiye* in Braj has brought out the real import of the Guru Granth Sahib.

New Deptts at Punjabi University

The Punjabi University, Patiala, proposes to start two new departments—Department of Social Work and Department of Biotechnology—from the 1987 academic session. The University Grants Commission (UGC) is reported to have extended financial assistance for setting up these departments.

News from Agril. Varsities

Horticulture Field Day

The Directorate of Extension Education, Sher-e-Kashmir University of Agricultural Sciences and Technology, organised a farmers field day for the development of horticulture in dryland areas of Jammu region of J&K State on 2nd of April, 1987. The field day was organised at the Horticulture Sub Research Station, Raya under the Regional Horticulture Research Station, Udheywala, Jammu. Prof. A. Ahmad, Vice-Chancellor presided. The latest technology on the cultivation of dryland horticultural crops like Papaya, Guava, Ber, Lemon, Kinnow etc. was discussed by the various scientists of the university.

Hon'ble Minister for Agriculture, J&K State, Shri Mohammad Shafi, who was the chief guest, stressed on the farming system i.e., growing agricultural and horticultural crops vis-a-vis raising of poultry and animal husbandry in dryland areas. He pleaded for close linkage between the university scientists and farmers to know the problems of the specific areas and to provide suitable solutions thereof by the university scientists.

Kharif Oilseeds Workshop

The Punjabrao Krishi Vidyapeeth will organise, in collaboration with the Indian Council of Agricultural Research, New Delhi, an All India Kharif Oilseeds Workshop at Akola from 22nd to 27th April 1987. All aspects of research on groundnut, Sunflower, Sesame and Niger including seed production would be discussed at the workshop and a future programme formulated to accelerate the production of oilseeds.

About 300 oilseeds scientists from all over the country are expected to participate in the workshop.

New Cereal Crop

The G.B. Pant University of Agriculture and Technology is actively engaged in producing a new cereal crop—Hordicale by crossing barley with the man-made cereal triticale. This rust resistant crop contains about 3-5 per cent more protein than wheat and has increased awns to avoid bird damage at harvesting time. Besides its Maize like nodal roots give it a firm stand in the field and as such, there are less lodging risks at crop maturity.

The Amber coloured grains bolder than wheat and triticale of hordicale was recently exhibited in the scientific exhibition organised by the students of the Agriculture College of the University as a part of their 'Agro-week' celebrations.

Sports News

Professional Improvement in Physical Education

A Workshop on Professional Improvement in Physical Education was held at Kurukshetra University from March 29-31, 1987. Prof. S. Srivatsan, Dean, Faculty of Physical Education, Guru Nanak Dev University, Amritsar who inaugurated the workshop, emphasised the need for implementation of uniform physical education programmes at the various Physical Education Training Institutions of the country. He also stressed on improvement of professional status of Physical Education teachers at par with those of other disciplines. Dr. C.L. Kundu, Dean, Faculty of Education and Chairman, Department of Education, Kurukshetra University, who presided over the function, informed the participants that a uniform syllabus of Physical Education including Yoga and Sports at different stages of schools and higher education was under active consideration of the National Council of Educational Research and Training (NCERT) and the University Grants Commission (UGC). He further observed that under the New Education Policy a substantial amount of grant would be available for playgrounds facilities, infrastructure and staff for Physical Education and Sports.

41 delegates from different Physical Education and Sports Institutions and Universities participated in the Workshop, which recommended *inter alia:*

(a) The one year M.P. Ed. Course should be discontinued and replaced by a two year Master of Physical Education course. A uniform syllabus should be adopted at the post-graduate level.

(b) Only those who have passed foundation course of three years duration, B.P.E. (2 years), B.P.Ed/D.P.Ed./B.Ed. (Phy. Edu.) having obtained atleast 45% marks should be admitted to the Master's course.

(c) The present nomenclature Diploma in Physical Education may be substituted as Bachelor in Physical Education.

(d) The UGC be requested to provide additional grants for augmenting teaching and supporting staff such as Physiotherapist, Massage expert etc., setting up of libraries and developing other infrastructural facilities.

(e) The essential qualifications for appointment of teachers in Physical Education should be a Master's Degree in the subject of study with 55% marks. The incumbent must have participated at the Inter-University or National level in any game of sport. Persons possessing administrative and organisational experience in games and sports should be given preference.

News from Abroad

Meeting the Challenge

Wide ranging proposals have been made in the White Paper, 'Meeting the Challenge' presented by Mr. Kenneth Baker, British Secretary of State for Education and Science to the House of Commons on 1st April, 1987. Three basic aims and purposes of higher education listed in the White Paper are to serve the economy more effectively; to pursue basic scientific research and scholarship in the arts and humanities; and to have closer links with industry and commerce, and promote enterprise. The White Paper marks the broad acceptance of the Croham Report. The University Grants Committee is proposed to be replaced by University Funding Council (UFC), grants are to be replaced by cash contracts, and access to higher education will be based on need for manpower. The University Funding Council's essential responsibilities will relate to the allocation of funding between universities rather than its overall amount, which is a matter for Government to decide after considering all evidence. The Government will lay down the guidelines to set the framework for the planning which the UFC and the universities should conduct. The Government will play no part in distributing general funds between individual universities. The UFC will have the power to require that funding is or is not used for particular purposes. The arrangement for the flow of management information and for accountability from the universities to the UFC and onwards to Government should be much improved.

The polytechnics and almost 140 colleges are proposed to be removed from local authority control. They will be the responsibility of a new Polytechnics and Colleges Funding Council.

Both the universities and the polytechnics will be expected to make contracts with their respective funding councils. Payment of grants from public funds does not imply unconditional entitlement to support from the taxpayer at any particular level. The resources made available are intended to secure delivery of educational services which are of satisfactory or better quality and which are responsive to the needs of students and employers.

According to the White Paper the replacement of grants or allocations by 'contracts' is designed to:

1. Encourage institutions to be enterprising in attracting contracts from other sources, particularly the private sector, and thereby lessen their present dependence on public funds;
2. Sharpen accountability for the use of the public funds which will continue to be required; and
3. Strengthen the commitment of institutions to the delivery of the education services which it is agreed with the new Funding Council they should provide.

Before entering into contracts, the Funding Council will assess the performance of the institutions and any serious failure to meet the terms of a previous contract could result in revised terms or even a failure to renew it.

Manpower planning also makes a comeback. The White Paper stresses that in a period when student numbers could decline sharply for demographic reasons the Government considers student demand alone to be an insufficient basis for the planning of higher education. A major determinant must also be the demands for highly qualified manpower, stimulated in part by the Government's own economic and social policies. Actual student demand will be monitored from year to year and an inter-departmental review of prospective needs for new graduates by industry, commerce and the public services will be undertaken.

A new Bill expected to be introduced soon in the Parliament will thus result in an increased degree of central control as also enhance the influence of industry and commerce over the planning of higher education in Britain.

ICAR SUMMER INSTITUTES/SHORT COURSES–1987

Date	Topic/Subject of Summer Institute Short courses.	Name of the Director	Venue
5th to 24th June, 1987	Efficient use of brackish water in crop production.	Dr. A.S. Faroda, Prof & Head	Deptt. of Agronomy, Haryana Agricultural University, Hisar.
8th to 17th July, 1987	Modern Analytical Techniques in Agricultural Biochemistry.	Dr. Sudarshan Singh, Sr. Biochemist-uni-Head	Deptt. of Biochemistry, Punjab Agricultural University, Ludhiana.
23rd June, to 2nd July, 1987	Water Resource Management in Command Areas.	Dr. S. Purushotam, Chief Scientist	Agricultural College & Research Institute, Madurai.
27th April, to 16th May, 1987	Pesticides, Chemistry, analysis and their quality control.	Dr. N.K. Roy, Head	Division of Agril. Chemicals, Indian Agricultural Research Institute, New Delhi.
3rd to 15th June, 1987	Land evaluation for Agriculture & Forestry.	Dr. A.K. Sharma, Assoc. Professor	Deptt. of Soil Science, G.B. Pant University of Agriculture & Technology, Pantnagar (U.P.)
18th to 23rd May, 1987	Field Plot Machinery for mechanization of Agricultural research.	Shri B.G. Yadav, Scientist S-3	Central Institute of Agricultural Engineering, Bhopal.
4th to 23rd June, 1987	Quantitative Techniques to evaluate returns to investments on Agril. Development projects.	Dr. P.K. Joshi, Head	Division of Agril. Economics, Central Soil Salinity Research Institute, Karnal.
15th June to 4th July, 1987	Prospects of utilizing plant Genetics resources of North East of India.	Dr. M.H. Hazarika, Prof. & Head	Deptt. of Plant Breeding & Genetics, Assam Agricultural University, Jorhat.
20th June, to 10th July 1987	Recent advances in seed borne viruses with special reference to detection, diagnosis, ecology & Management.	Dr. V.R. Mali, Head	Deptt. of Plant Pathology, Marathwada Agril. University, Parbhani.
May or June, 1987	Training for Agril. Dev-strategy and Methodology.	Dr. M.K. Sethu Rao, Head	Division of Agril. Extension Education, University of Agril. Sciences, GKVK, Bangalore.
2nd June to 29th June, 1987	Advances in production, orchard Management & Post harvest Management of temperate fruits.	Dr. R.P. Awasthi Prof. & Head	Deptt. of Pomology & Fruit Tech., Dr. Y.S. Parmar University of Horticulture & Forestry, Solan, Nauni - 173230.
5th to 25th July, 1987	Recent Advances in surgical affections of urogenital system.	Dr. P.E. Kulkarni, Dean, Faculty of Vety. Sci.	P.G. Department of Surgery, Punjabrao Krishi Vidyapeeth Akola.
15th June to 5th July, 1987	Recent trends in clinical diganosis techniques in internal medicine.	Dr. S.K. Dwivedi, Head	Division of Experimental Medicine & Surgery, Indian Veterinary Research Institute, Izatnagar.
8th to 27th June, 1987	Recent advances in Reproductive Physiology in Poultry.	Dr. J.N. Panda, Prof. & Head	Division of Physiology & Reproduction, Central Avian Res. Instt., Izatnagar.
8th to 28th June, 1987	Neuropharamacology	Dr. B.D. Garg, Prof. & Head	Deptt. of Pharamacology, Haryana Agril. University, Hisar.
25th Nov. to 5th Dec. 1987.	Camel Management and Production.	Dr. N.D. Khanna, Project Director	National Research Centre on Camel, Bikaner.
29th June, to 5th July 1987.	Advances in Rabbit Production.	Dr. R.N. Singh, Head	Central Sheep & Wool Research Institute, VARSA, Avikanagar.
4th to 23rd May, 1987	Recent advances in fish and shell fish Nutrition.	Dr. P.S.B.R. James, Director	Central Marine Fisheries Research Instt., E.R.G. Road, Cochin-31.
14th to 25th July, 1987	Modern quantitative Techniques in fisheries research.	Prof. K.K. Ghosh, Scientist S-3	Central Institute of Fisheries Education, Bombay.

Further details may be obtained from the Directors of respective Summer Institutes.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles culled from Periodicals received in AIU Library during March, 1987.

EDUCATIONAL PSYCHOLOGY

Brown, Robert D and others. Stress on campus: An interactional perspective. *Res. Hr. Edn.* 24(1), 1986, 97-112.

Shirom, Arie. Students' stress. *Hr. Edn.* 15(6), 1986, 667-76.

EDUCATIONAL SOCIOLOGY

Smart, John C. College effects on occupational status attainment. *Res. Hr. Edn.* 24(1), 1986, 73-96.

EDUCATIONAL ADMINISTRATION

Bhagia, N.M. Training for educational administrators in India. *New Frontiers Edn* 16(4), 1986, 88-94.

Blackburn, Robert T. and others. University faculty and administrator responses to job strains. *Res. Hr. Edn.* 25(1), 1986, 31-41.

Glover, Robert H. Designing a decision-support system for enrolment management. *Res. Hr. Edn.* 24(1), 1986, 15-34.

Wartgow, Jerome F. Implementing nonclassroom learning: Management considerations. *New Directions Hr. Edn.* (56) 1986, 7-15.

CURRICULUM

Ediger, Marlow. The psychology of learning and the mathematics curriculum. *Prog. Edn.* 61(6), 1987, 130-34, 150.

Romm, Tsila and Maller, Sophia. A three dimensional model for using case studies in the academic classroom. *Hr. Edn.* 15(6), 1986, 677-96.

TEACHERS & TEACHING

Breivik, Patricia Senn. Library-based learning in an information society. *New Directions Hr. Edn.* (56), 1986, 47-55.

Buch, Piloo. Teacher education in the context of the New Education Policy. *New Frontiers Edn.* 16(4), 1986, 82-7.

Collier, Gerald and Clarke, Rufus. Syndicate methods: Two styles compared. *Hr. Edn.* 15(6), 1986, 609-18.

Feldens, Maria Das Gracas F. and Duncan, James K. Improving university teaching : What Brazilian students say about their teachers. *Hr. Edn.* 15(6), 1986, 641-649.

Feldman, Kenneth A. The perceived instructional effectiveness of college teachers as related to their personality and attitudinal characteristics: A review and synthesis. *Res. Hr. Edn.* 24(2), 1986, 139-213.

EDUCATIONAL RESEARCH

Bhimasankaram, C.V. A survey of research in mathematics education. *Prog. Edn.* 61(7), 1987, 135-41.

Tan, David L. The assessment of quality in higher education. A critical review of the literature and research. *Res. Hr. Edn.* 24(3), 1986, 223-65.

EDUCATIONAL TECHNOLOGY

Duchastel, Philippe. Computer text access. *Comput Edn.* 10(4), 1986, 403-9.

Ehud, Bar-On. A programming approach to mathematics. *Comput Edn.* 10(4), 1986, 393-401.

Orzech, Je'ev and Shelton, Fred Ames. The electronic spreadsheet as a didactic learning enhancement. *Comput Edn.* 10(4), 1986, 429-37.

Purdy, Leslie N. Telecourses: More than meets the eye. *New Directions Hr. Edn.* (56), 1986, 27-36.

Stowers, Michael P. and Tessmer Martin. Self-paced instruction. *New Directions Hr. Edn.* (56), 1986, 17-26.

EVALUATION

Broadfoot, P. Records of achievement: Achieving a Record? *Studies Ednl. Eval.* 12(3), 1986, 313-23.

Decking, R.A. Criterion-referenced grading techniques. *Studies Ednl. Eval.* 12(3), 1986, 281-93.

Dragonas, Thalia and Kostakis, Anastasia. Defining educational environments : The case of the Athens Technological Education Institute (TEI). *Hr. Edn.* 15(6), 1986, 651-65.

Harnqvist, Kjell. The IEA revisited. *Comp. Edn. Rev.* 31(1), 1987, 129-136.

Ingenkamp, K. The possible effects of various reporting methods on learning outcomes. *Studies Ednl. Eval.* 12(3), 1986, 341-49.

Jong, J.H.A.L. de. Achievement tests and national standards. *Studies Ednl. Eval.* 12(3), 1986, 295-303.

Masters, G.N. and Evans, J. A sense of direction in criterion referenced assessment. *Studies Ednl. Eval.* 12(3), 1986, 257-65.

Moses, Ingrid. Using organisational theory in the promotion of evaluation : A case study. *Hr. Edn.* 15(6), 1986, 619-39.

Nuyen, N.A. Equating achievement across subjects: Is it possible? The Queensland experience. *Studies Ednl. Eval.* 12(3), 1986, 245-55.

Pennycuick, D.E. and Murphy, R.J.L. Mastery, validity and comparability issues in relation to graded assessment schemes. *Studies Ednl. Eval.* 12(3), 1986, 305-311.

Purves, Alan, C. The evolution of the IEA: A memoir. *Comp. Edn. Rev.* 31(1), 1987, 10-28.

Withers, G. Profile reports: A typology and some caveats. *Studies Ednl. Eval.* 12(3), 1986, 325-333.

ECONOMICS OF EDUCATION

Hoenack, Stephen A and others. The marginal costs of instruction. Res. Hr. Edn. 24(4), 1986, 335-418.

Mason, Paul M. and Alfano Anthony. Innovations in University finance: A growing necessity and intelligent too! *Res. Hr. Edn.* 24(4), 1986, 419-32.

Renner, K. Edward. Career alternatives: A model for calculating financial costs and for making policy decisions. *Res. Hr. Edn.* 25(1), 1986, 42-54.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Dressel, Paul L. A musing look at American higher education: *Res. Hr. Edn.* 24(3), 1986, 318-24.

Harman, Grant. Restructuring higher education systems through institutional mergers: Australian exprerience, 1981-1983. *Hr. Edn.* 15(6), 1986, 567-86.

Pritchard, Rosalind M.O. The third amendment to the Higher Education Law of the German Federal Republic. *Hr. Edn.* 15(6), 1986, 587-607.

Quarles, Dan R. and Roney, Robert, K. Preparation, style and format of doctoral dissertations in U.S. colleges and universities. *Res. Hr. Edn.* 25(1), 1986, 97-108.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

BIOLOGICAL SCIENCES

Anthropology

1. Srikumari, Chevuru Rukmini. *A study of natural selection and genetic adaptation among the four endogamous subpopulations of Andhra brahmins.* Andhra.

Environmental Sciences

1. Azeez, P.A. *Studies on some aspects of toxicity and accumulation of heavy metals, Eu, Ed, Ni and Cr on cyanobacteria.* JNU.

2. Jayaraman, S. *Environmental biotechnology in cyanobacteria: Studies on isolates of Seytonema and Aulosira.* Madurai.

3. Srinivasan, S. *Impact of coal ash effluents discharged from a thermal power plant on water quality of a receiving river in Delhi.* JNU.

Microbiology

1. Goyal, Neelima. *Solubilization of low grade rock phosphates by Poecilomyces fusisporus and Pseudomonas striata.* HAU.

2. Ram Parshad. *Role of hup character in cow pea rhizobia.* HAU.

Marine Biology

1. Jagadeesan, M. *Morphogenetic and ontogenetic studies of some South Indian palons.* Madurai.

2. Noble, A. *Some insights into the resource of the Indian mackerel, Rastrelliger kanagurta Cuvier.* Cochin.

3. Prasanna Kumar, S. *Studies on sediment transport in the surf zone along certain beaches of Kerala.* Cochin.

Biochemistry

1. Datta, Arun Kumar. *Characterization of the lipid profiles of mycobacteria.* Calcutta.

2. Hazeena Begum, V. *Studies on antiinflammatory activity of Withania somnifera: A biochemical approach.* Madurai.

3. Jain, Nisha. *Characterization of hydrogen uptake system in fast growing Rhizobium.* HAU.

4. Mukhopadhyay, Nisith Kumar. *Localisation and characterisation of enzymes involved in the biosynthesis of mycobacillin by Bacillus subtilis* B_3. Calcutta.

5. Ranka, Rashmi. *A comparative biochemical study of allopathic, homeopathic and indigenous hypoglycaemic agents.* Rajasthan.

6. Ray, Swapankumar. *Biochemical studies of the residual activities of organochlorine insecticide in maize during germination.* Calcutta.

7. Sanyal, Asis Kumar. *Nitrogen metabolism in Trichophyton rubrum.* Calcutta.

8. Sharma, Arun Kumar. *Phytochrome regulation of nitrate reductase and nitrate reduction in maize.* JNU.

9. Singh, Nishi Kant. *Regulation of heme biosynthesis at the level of L-alanine: 4, 5 dioxovalerate transaminase.* JNU.

10. Vaikundaraja, L.M. *Role of poly (A) RNA and Poly (A) RNP particles during reinitiation of development in Artemisia salina.* Madurai.

Botany

1. Das, Kshetra Mohan. *Nutrition triggering factors for the incidence of stem-rot disease in rice incited by Leptospharia sal-*

vinii Catt under different agronomical conditions. Utkal.

2. Gupta, Rashmi. *Induced mutagenesis in some economically important solanaceous crop plants.* Rajasthan.

3. Jasbir Kaur. *Anatomical and biochemical characteristics of groundnut, Arachis hypogaea L. Leaves in relation to resistance susceptibility to Tikka disease.* PAU.

4. Joshi, Kalpana. *Studies on the reproductive biology of Tylophora indica (Burm F) Merr.* Sukhadia.

5. Kadam, Sharchandra Laxman. *Subaerial algae of Dharwad and its environs.* Karnatak.

6. Kandhari, Janaki. *Studies on pyricularia leaf spot of bajra. Pennisetum americanum (L) Leeke.* Rajasthan.

7. Khan, Mohd. Latif. *Ecological studies on regeneration of a few tree species in sub-tropical wet hill forests of Meghalaya.* NEHU.

8. Majumdar, Syamali. *On the pollen morphology of some Indian rubiaceae and a few allied taxa with their possible bearing on the taxonomy of the group.* Calcutta.

9. Mathur, Rajendra Prasad. *Ecophysiological observations on Ocimum species.* Sukhadia.

10. Paliwal, P.P. *An ecological study of Fateh Sagar Lake, Udaipur with macrophytic vegetation.* Sukhadia.

11. Sarma, Surendra Nath. *Biology of Imperata cylindrica (L) Beauv.* NEHU.

12. Sharma, N.C. *Studies on flora of Banswara District of Rajasthan.* Sukhadia.

13. Soni, Indu Bala. *Evaluation of the action of some selected agrochemicals on Cyamopsis.* Sukhadia.

14. Suresh, C.R. *A re-investigation of the medicinal plants in Costus malabaricus.* Calcutta.

15. Thresia, P.C. *A preliminary study of the agaric flora of South India.* Calicut.

16. Tyagi, Sandhya. *Studies on the reproductive biology of Tylophora indica (Burm F) Merrill.* Sukhadia.

17. Vaidya, Tanuja. *Physiological studies on leaf blight of wheat caused by Alternaria triticina Prasada and Prabhu.* Rajasthan.

18. Verma, Usha. *Studies on the effect of metal toxicity on the physiology of blue green algae.* Sukhadia.

19. Vyas, Tara. *Ecophysiological and morphogenetic studies on plagiochasma appondiculatum (Lobm) et. Lindb.* Sukhadia.

20. Yusuf, Mohammad. *Observations on the vegetation around Bajaj cement factory, Nahar Maghra, Udaipur.* Sukhadia.

Zoology

1. Acharay, P. Mohan Rao. *In vivo synchronization of DNA replication in polytene chromosomes of Drosophila.* Calcutta.

2. Anil, A.C. *Studies on marine biofouling the Zuary Estuary (Goa), West Coast of India.* Karnatak.

3. Bhatnagar, Suraj Prakash. *Studies on the distribution and behaviour of Holotrichia spp. (Coleoptera: Scarabaeidae).* Sukhadia.

4. Bhattacharyya, Romkamal. *Ecology and population of the banded pond snail, Bellomya bengalensis. Lamarck.* Calcutta.

5. Bhaumik, Anindakisor. *Studies on the Urinogenital organs and breeding biology of some fishes (order perciformes).* Calcutta.

6. Chaturvedi, Durga Prasad. *Control of Scirpophaga incertulas (Wilk) the principal stem borer of rice in India by some systemic and contact insecticides with reference to their residual toxicity.* Utkal.

7. Chaubisa, Shanti Lal. *The biology of certain larval trematodes infecting fresh water snails of lakes of Udaipur.* Sukhadia.

8. Chaudhuri, Pinaki, Prasad. *A taxonomic study of the culicoides biting midges, (Ceratopogonidae: Diptera: Insecta) of West Bengal.* North Bengal.

9. Chaudhuri, Priyasarkar. *Neurosecretion in the ventral nerve cord of a earthworm. Metiphire pegnana (Rosa, 1890).* Calcutta.

10. Chaudhuri, Santasri. *Studies on seasonal gonadal cycle and its endocrine relationship in an avain pest.* Calcutta.

11. Das, Sabita. *Studies on the chromosomes of Indian grasshopper.* Utkal.

12. Hora, Chattar. *Some aspects of host parasite relationship between Bubalus bubalis (Buffalo) and its amphistomes, Ceylonocatyle Scollocoelium and Paramphistomum cervi.* Sukhadia.

13. Jayashankar, Radhika. *Changes in hypothalamo-hypophyseal sensitivity to testosterone during growth and sexual maturation in male rats.* Delhi.

14. Joseph, Agrapu. *Indigenous techniques for studying meiobenthos with special reference to the eco-biology of an oligochaete, Aelosoma hemprichi Ehr in back waters of Visakhapatnam.* Andhra.

15. Krishna Rao, Palakodeti. *Studies on the biology of Culex guingue Fasciatus (Say, 1823) and its role in the transmission of bancroftian filariasis.* Andhra.

16. Lallowry, Madan. *Adrenal gland histoenzymology of Taphozous Melanopogon melanopogon Tammnick (Microchiroptera: Mammalia) under non-pregnant and pregnant state.* Sukhadia.

17. Mahendra Kumar. *Protective effect of 2-mercaptopropionyglycine (MPG) and 5-2-(3-aminopropylamino) ethylphosphorothioic acid (WR-2721) on the intestina epithelium of Swiss albino mice after single and fractionated doses of gamma radiation.* Rajasthan.

18. Mazumdar, Vibhas. *Morphometric chemo and cytotaxonomic studies on some edible oysters.* Sukhadia.

19. Neruka, Kavita. *Study of the radioprotective effect of WR-2721 on bonemarrow and spleen of Swiss albino mice.* Rajasthan.

20. Raja Kumari, Karupothu. *Studies on the intestinal flagellates of termites of Andhra Pradesh.* Andhra.

21. Rao, P.S. *A study of primary productivity, plankton and some physico-chemical features of the lake Jaisamand in relation to fisheries.* Sukhadia.

22. Rao, Sunita. *Histophysiological studies on the corpus allatum of Heliothis armigera Hubner (Lepidoptera).* Durgawati.

23. Sharma, Om Prakash. *Studies on the role of selected organic and inorganic fertilizers in pisciculture.* Sukhadia.

24. Shrivastava, Jyotsna. *Studies on the effect of modern synthetic insecticides on certain fresh water fishes.* Durgawati.

25. Sreedharan, P.C. *Study of the influence of ecological factors on the density of ciliate population in aquatic environment.* Bangalore.

26. Wadhawan, Poonam. *Studies on some cestode parasites of fishes of Gobind Sagar Lake and its associated tributaries in North India.* Panjab.

Medical Sciences

1. Baksi, Durgapada. *Studies on physical properties of newly designed elbow prosthesis and its clinical evaluation after its implantation.* Calcutta.

2. Manohar, Saranjit Singh. *Stability kinetics and formulation studies on centhucridine.* Panjab.

3. Satyanarayana, Tandra. *Phytochemical and pharmacognostic studies on some Indian medicinal plants.* Andhra.

4. Thomas, Binthi. *Radioprotective effect of certain thiol compounds on the hemopoietic stem cells in Swiss albino mice.* Rajasthan.

Agriculture

1. Allaha Noor. *Management of the armyworm Mythimne sperate Walker with special reference to threshold and selective use of insecticides.* Sukhadia.

2. Arya, Gyanendra Kumar. *Combining ability parameters for yield and its related morpho-physiological characters in bread wheat.* Sukhadia.

3. Bhatnagar, Vijay Kumar. *Genetic analysis of yield and its components in 6-rowed barley.* Sukhadia.

4. Bhatt, B.N. *Inheritance of resistance to downy mildew and of yield and yield associated characters in bajra Pennisetum typhoides (Burm) Stapf and Hubb.* Sukhadia.

5. Borah, Satish Chandra. *Standardization of foliar sampling technique in grapevine under Punjab conditions.* Panjab.

6. Chandel, Kamal Jit Singh. *Genetical studies in carrot, Daucus carota L.* YS Parmar.

7. Chhipa, Baluram. *A study on the indices of salinity, sodicity and boron tolerance of wheat.* Sukhadia.

8. Choudhary, Lata. *Modifying effects of growth regulators on mutagenic efficiency of gamma rays in Barely.* Sukhadia.

9. Dadheech, Laxmi Narayan. *Studies on the biotoxicity persistance and residues of some insecticides in/on mustard.* Sukhadia.

10. Dave, Raghu Vallabh. *Studies on heterosis and combining ability for fodder attributes in pearl millet and bajra, Pennisetum typhoides (Burm f.) Staff and C.H. Hubb.* Sukhadia.

11. Gandhoke, Manmohan Singh. *A study on some nutritional, development and storage aspects of Piper betel L.* Sukhadia.

12. Gauri Shankar. *Effect of slow release nitrogenous fretilizers and levels of phosphorus on the rate of nitrification uptake of N.P.K. and yield of wheat in loamy sand soil.* Sukhadia.

13. Gholve, Mahipatrao Anna. *Sociocultural and psychological correlates of tribal development in Kinwat block of Nanded District of Maharashtra State.* Marathwada Agrl.

14. Gopesh Chandra. *Effects of some ionic ratios of irrigation water of different qualities on soil and on yield and nutrient uptake by wheat.* Sukhadia.

15. Goswami, Ramanand. *Effect of date of sowing plant population, level and form of nitrogen on yield and quality of sugar beet, Beta vulgaris L.* Sukhadia.

16. Gupta, Mohan Lal. *Intercropping of legumes in sorghum at different levels of nitrogen under rainfed conditions.* Sukhadia.

17. Gupta, Yogendra Kumar. *Mutagenic efficiency of physical and chemical mutagens and their combination in barley, Hordeum vulgare L.* Sukhadia.

18. Handique, Arun Kumar. *Physiological investigation into deletrious effects of chemical mutagens and quest for remedial measures.* Guhati.

19. Hanuman Singh. *Molya disease of wheat caused by Heterodera ovenae Woll,* 1924. Sukhadia.

20. Hazarika, Utpal Kumar. *Effects of different water regimes and certain nutrients on the growth and yield of rice, Oryza sativa Linn grown in mid latitude of Meghalaya.* Gauhati.

21. Ishwari. *Studies on mineral nutrition of sunflower, Helianthus annus L in salt affected soils.* CSAT Kanpur.

22. Jitendra Singh. *Storage studies in onion, Allium cepa L.* HAU.

23. Khan, Aijaz Ahmad. *Growth, nutrient uptake and quality of sunflowers influenced by sulphur fertilization and mulching on eroded soils.* CSAT Kanpur.

24. Krishna Prasad. *Correlation and path analysis of forage attributes in Avena sativa L. and in some other Avena species.* Birsa Agrl.

25. Mann, Mahipal Singh. *Genetic analysis of yield and its components in Durum Wheat, Triticum durum desf.* Sukhadia.

26. Mathur, Kusum. *Studies on seedling blight of sorghum caused by Gloeocercospora Sorghhi Bain and Edgerton in Rajasthan.* Sukhadia.

27. Mathur, Mohan Lal. *Studies on heterosis and combining ability analysis of yield and its components in clusterbean: Cyamopsis tetragonoloba (L) Taub.* Sukhadia.

28. Mathur, Rekha. *Studies on genetic variability and inheritance of some qualitative characters in clusterbean, Cyamopsis tetragonoloba (L) Taub.* Sukhadia.

29. Mazumdar, S.P. *Designation of critical level of soil potassium in farmers field.* Sukhadia.

30. Porwal, Mahendra Kumar. *Weed control in wheat, Triticum aestivum L with methobenzthiazuren metoxuron, isorturon, fluchloralin and bentazon and their combinations with 2, 4-D.* Sukhadia.

31. Ramendra Prakash. *Physiological studies on the influence of certain growth regulators on potato, Solanum tuberosum L.* CSAT Kanpur.

32. Rana, N.D. *Studies on genetic architecture in Brassica juncea Coss.* HP.

33. Rathore, Santosh. *Effects of some macro and micronutrients—Sulphur, phosphorus, manganese and zinc.* Sukhadia.

34. Sarbjeet Singh. *Studies on competition between wheat, Triticum aestivum L and wild oats, Avena ludoviciana Dur under different agronomic manipulations.* PAU.

35. Sharma, Kul Bhushan. *Studies on bajra rust.* Sukhadia.

36. Sharma, Rattan Lal. *Studies on brown rot of apple caused by Monilinia Spp.* YS Parmar.

37. Sharma, Vishnu Kumar. *Effect of some selected industrial and agricultural wastes on soil physical and chemical characteristics and crop growth.* CSAT Kanpur.

38. Shrimali, Mahesh Kumar. *Studies on combining ability for yield and its component in durum wheat, T. durum, Desf.* Sukhadia.

39. Singh, Sheo Dutt. *Epidemiology of late wilt of maize, Zea mays caused by G. Maydis Samra Sabet and Hingorani.* Sukhadia.

40. Singh, Shiv Dayal. *Efficiency of slow releasing nitrogenous fertilizers with respect to rate of nitrification, nutrient uptake and yield of wheat under saline water.* Sukhadia.

41. Sodani, Satyanarayan. *Gene action and combining ability studies inheritance of seed yield and its components in Sesamum indicum L.* Sukhadia.

42. Solanki, Zabbar Singh. *Inheritance of seed field and oil content in sesame, Sesamum indicum L.* Sukhadia.

43. Srivastava, Bhanu Pratap. *Genetic architecture of yield and components of yield in Bhindi, Abelmoschus esculentus (L) Moench.* CSAT, Kanpur.

44. Srivastava, Meera. *Study of the physiological effects of growth regulators on Indian mustard, Brassica juncea Czern and Coss L under irrigated and unirrigated situations.* CSAT Kanpur.

45. Suryawanshi, Dadarao Shankarrao. *Life tables for Earias vittella Fabricius and assessment of crop losses due to major pests in Okra.* Marathwada Agrl.

46. Tripathi, Surendra Kumar. *Transformation and availability of N, P and Zn to rice in salt affected soils in relation to fertilizer use efficiency.* CSAT Kanpur.

47. Verma, Mohan Krishna. *Genetical evaluation of wheat germplasm against virulence of wheat seedgall nematode, Anguina tritici Steln Filipjev 1936 in different environments.* Sukhadia.

48. Wani, Shafiq Ahmad. *Study of genetic parameters in relation to yield and characters associated with drought resistance in Indian mustard, Brassica juncea (L) Czern and Coss.* CSAT Kanpur.

Veterinary Science

1. Ashwani Kumari. *Studies on bovine mycoplasmal mastitis and experimental pathogenicity of mycoplasma bovis.* HAU.

2. Chauhan, D.S. *Comparative studies on simple and strangulated obstruction of ileum in sheep.* Sukhadia.

3. Mathur, Om Prakash. *Studies on the utilization of bypass proteins and their use of non-protein-nutrogen on biological responses of growth and wool production.* Sukhadia.

4.. Purohit, Shiv Kumar. *Studies on the antigenic analysis of various fractions of Trypanosoma evani.* Sukhadia.

5. Sharma, Krishan Swaroop. *Improvement in the nutritive value of groundnut cake for poultry.* PAU.

6. Singh, Satya Deo. *A study on the effect of different levels of protein and energy on milk production and its quality in Murrah buffaloes.* CSAT Kanpur.

7. Srivastava, Ram Prakash. *Technology of Shrikhand making and its shelf life.* CSAT Kanpur.

PONDICHERRY UNIVERSITY

PONDICHERRY

SCHOOL OF ECOLOGY

POST GRADUATE PROGRAMME IN ECOLOGY

(Announcement for Student Enrolment)

Dated: April 8, 1987

The **School of Ecology**, the newest of the innovative Schools of Pondicherry University is starting a programme leading to Master's Degree in Ecology as approved by the University Grants Commission. This special programme will lay a great emphasis on research work. The student will spend major part of the last two semesters in doing an intensive field study oriented research under a faculty supervisor.

ANDAMAN NICOBAR ISLANDS & LAKSHADWEEP

Opportunities for field work will exist in Andaman and Nicobar Islands and Lakshadweep Islands as they form part of the Pondicherry Central University area.

FACULTY

The School will have in place expert faculty in time. Prof. V.M. Meher-Homji an Ecologist of international repute will be the Honorary Dean. Prof. Rauf Ali, formerly of Mahidol University, Thailand and a noted IUCN expert will be an adjunct Professor.

INTAKE

Normally students with a Bachelor's Degree in any Science area may apply for this unique programme. Exceptional candidates from other disciplines may also apply.

SELECTION

The students will be selected on the basis of a Written Entrance Examination in the form of an aptitude test. This test will be held at Pondicherry on **June 21, 1987**. Select shortlisted top ranking candidates will have an interview at Pondicherry on the **11th & 12th of July 1987** at their own cost.

FACILITY

The School will have in place the best facilities for carrying out research like Computers and other sophisticated scientific equipment. This School would function in close co-operation with VCRC (Vector Control Research Centre) and the French Institute -- two institutes of international renown.

APPLICATION

Application forms may be had from the Office of the Registrar (No. 128, Rangapillai Street, Pondicherry 605 001) on payment of Rs. 50/- by **Demand Draft drawn payable to the Finance Officer,** Pondicherry University on any Bank in Pondicherry from 1st May 1987. This fee includes the Entrance Examination fee as well.

LAST DATE

The application forms complete in all respects should reach the Registrar, Pondicherry University, No. 128, Rangapillai Street, Pondicherry 605 001 on or before **1st June 1987** in an envelope superscribed **SCHOOL OF ECOLOGY.**

The Classes will commence on **Monday the 3rd August, 1987.**

P.R. Ramanathan, IAS
REGISTRAR

CLASSIFIED ADVERTISEMENTS

DR YASHWANT SINGH PARMAR UNIVERSITY OF HORTICULTURE AND FORESTRY
SOLAN

ADVERTISEMENT No. 3/87

Applications on the prescribed form are invited for the following posts as per the qualifications mentioned against each :

I. Posts in the grade of Rs. 1200-1900

1. One post of Scientist in the discipline of Soil Science and Water Management.

Essential : Ph.D. or equivalent degree in Soil Science/Agronomy with consistently good academic record. Four years teaching and research experience in Soil and Water Conservation and significant contributions in the field as evidenced by publications.

2. One post of Scientist in the discipline of Fruit Breeding.

Essential : Ph.D. or equivalent Degree in Pomology/Genetics/Plant Breeding with consistently good academic record. Four years research and teaching experience in breeding of temperate fruits and significant contributions in the field as evidenced by publications.

3. One post of Scientist in the discipline of Agricultural Economics.

Essential : Ph.D. or equivalent degree in Agricultural Economics with consistently good academic record. Four years research and teaching experience in the economics and marketing of temperate fruits/horticultural crops and significant contributions in the field as evidenced by publications.

4. Three posts of Scientists in the discipline of Pomology.

Essential : Ph.D. or equivalent degree in horticulture (Pomology) with consistently good academic record. Four years teaching and research experience in temperate fruits and significant contributions in the field as evidenced by publications.

5. One post of Scientist in the discipline of Entomology.

Essential : Ph.D. or equivalent degree in Entomology with consistently good academic record. Four years teaching and research experience in the subject and significant contributions in the field as evidenced by publications.

6. One post of Scientist in the discipline of Plant Pathology.

Essential : Ph.D. or equivalent degree in Plant Pathology with consistently good academic record. Four years teaching and research experience in the concerned subject and significant contributions in the field as evidenced by publications.

7. One post of Scientist in the discipline of Forestry.

Essential : Ph.D. or equivalent degree in Forestry with consistently good academic record. Four years teaching and research experience in the concerned subject and significant contributions in the field as evidenced by publications.

Desirable : Should preferably be trained in Silviculture and have experience of Agro-Forestry.

8. One post of Associate Professor in the discipline of Genetics:

Essential : Ph.D. Degree or equivalent in the subject with consistently good academic record. Four years teaching/research/extension education experience in the subject and significant contributions in the field as evidenced by publications.

Desirable : The person should have worked on population genetics.

9. One post of Associate Professor in the discipline of Vegetable Breeding.

Essential : Ph.D. Degree or equivalent in the subject with consistently good academic record. Four years teaching/research/extension education experience in the subject and significant contributions in the field as evidenced by publications.

Desirable : The experience of teaching and research should be in breeding and seed production of vegetable crops.

10. One post of Associate Professor in the discipline of Zoology.

Essential : Ph.D. Degree or equivalent in the subject with consistently good academic record. Four years teaching/research/extension education experience in the subject and significant contributions in the field as evidenced by publications.

Desirable : Ph.D. Degree in Zoology with specialisation in Rodent Control as evidenced by publications.

11. One post of Vegetable Seed Production Officer in the discipline of Vegetable.

Essential : Ph.D. Degree or equivalent n the subject with consistently good academic record, four years' teaching/research/extension educational experience in the subject and significant contributions in the field as evidenced by publications.

Desirable : The experience of teaching and research should be of Vegetable Seed Production as evidenced by publications.

12. One post of Entomologist in the discipline of Entomology (Bio-control).

Essential : Ph.D. Degree or equivalent in the subject with consistently good academic record. Four years teaching/research/extension education experience in the subject and significant contributions in the field as evidenced by publications.

Desirable : Specialisation/experience in biological control of insect pests as evidenced by publications.

II. Posts in the grade of Rs. 700-1600

1. Three posts of Assistant Scientists in the discipline of Fruit Technology.

Essential : Ph.D. or equivalent degree in Fruit Technology/Food Sciences preferably with specialization in fruit and vegetable preservation or M.Sc. in the concerned or allied subject and holding equivalent post in a University or Organisation of comparable repute.

2. Seven posts of Assistant Scientists (One each in the discipline of Analytical

Chemistry, Forest Ecology, Honey Bee Management, Agricultural Extension, Agricultural Economics, Agricultural Statistics and Soil Science).

Essential : Ph.D. Degree in the concerned or allied subject; OR M.Sc. in the concerned or allied subject and holding an equivalent post in a University or Organisation of comparable standard.

3. One post of Assistant Professor in the discipline of Agricultural Economics.

Essential : Ph.D. Degree in the concerned or allied subject; OR M.Sc. in the concerned or allied subject and holding an equivalent post in a University or Organisation of comparable standard.

Desirable : The specialisation should be in production economics or operational research.

Note: In case candidates with the above qualifications are not available, M.Sc. in the concerned or allied subject with consistently good academic record will be eligible.

III. One post of Assistant Architect in the pay scale of Rs. 940-1850 (State Scale).

Essential : Degree or equivalent diploma in Architecture of recognised University with one year's experience under a qualified Architect.

IV. One post of Architectural Assistant Grade-II in the pay scale of Rs. 700-1200 (State Scale).

Essential : Degree or diploma in Architecture of a recognised University/Institution OR Intermediate in Architecture from a recognised University/Institution OR Three years diploma in Architectural Assistantships from a recognised Institution.

Note:

1. Educational qualifications relaxable in exceptional circumstances, higher pay admissible in the case of meritorious candidates;
2. Applicants already in service must send their applications through proper channel;
3. The University reserves the right not to fill up any of the post advertised;
4. Applications received after the last date fixed herein may be rejected without making any reference to the candidates. Applications on plain paper are also liable to be rejected;
5. Benefits of Contributory Provident Fund-cum-Gratuity OR General Provident Fund-cum-Gratuity and leave etc., as per University rules.

Application forms can be had from the Registrar, Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Solan - 173230 by sending application fee of Rs. 10/- in the shape of crossed Indian Postal Order (s) payable to the Comptroller, Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Solan-173230 alongwith a self addressed envelope of size 23 x 10 cms.

Application complete in all respects with attested copies of testimonials should reach the Registrar, Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Solan-173230 by **16-5-1987**.

Candidates applying from abroad may send their applications on plain paper giving particulars of date of birth, examinations passed (from High School onwards) with division and percentage of marks obtained in the various examinations, teaching/research/extension experience with a list of publications, if any, so as to reach the Registrar, Dr Yashwant Singh Parmar University of Horticulture and Forestry, Solan - 173230 by **31-5-1987**.

Ashwani Kapur
REGISTRAR

MADURAI KAMARAJ UNIVERSITY

Notification No. R/8/87

Applications in the prescribed form are invited for the following posts in the University.

1. One Lecturer in Tamil.
2. One Lecturer in Tamil under Tirukkural Chair.
3. One Lecturer in Gurunanak Devji Chair.
4. Two Lecturers in English.
5. Two Lecturers in Economics.
6. One Lecturer in Medieval History.
7. One Lecturer in Ancient History.
8. One Lecturer in Commerce.
9. Two Lecturers in Library Science.
10. Five Lecturers in Mathematics.
11. Five Lecturers in Physics.
12. One Lecturer in Physical Chemistry.
13. One Micro Analyst.
14. One Lecturer in Bio-Chemistry.
15. One Junior Scientist in University Service and Instrumentation Centre.
16. One Lecturer in Neurophysiology.
17. One Lecturer in Plant Cell Tissue Culture.
18. One Lecturer in Molecular Biology.
19. One Lecturer in Animal Physiology.
20. One Lecturer in Animal Behaviour.
21. One Lecturer in Plant Ecology.
22. One Lecturer in Computer Science and Applications.
23. One Asst. Physical Director/Directress.
24. Two Project Officers under Adult Education.
25. One Programme Officer under the Department of Youth Welfare.

Scale of Pay

Lecturer/ Micro Analyst/ **Jr. Scientist/** **Project Officer/** **Programme Officer/**	Rs. 700-40-1100-50-1600.
Asstt. Physical Director :	Rs. 700-40-1100-50-1300.

Appointment of persons on deputation will also be considered, if the candidates are found suitable and the employer is agreeable to spare the services.

The prescribed form of application and full details regarding qualifications and experience required can be got from the undersigned on requisition accompanied by:

(i) a self addressed envelope with postage stamps to the value of Rs. 3.80 ps. affixed thereon; and

(ii) a State Bank of India challan for Rs. 10/- (Account No. 1 of the Madurai Kamaraj University) or Demand Draft for Rs. 10/- payable at Madurai drawn in favour of the REGISTRAR, MADURAI KAMARAJ UNIVERSITY, MADURAI-625 021.

MONEY ORDERS AND POSTAL ORDERS WILL NOT BE ACCEPTED.

Preference would be given to Scheduled Caste/Scheduled Tribe candidates who are considered fit in respect of Lecturers.

The number of the notification should be quoted in the requisition i.e. No. R/8/87

The last date for receipt of filled in applications is **11th May, 1987**. Applications received after the due date will not be considered.

P. P. Chinnadurai
REGISTRAR

UNIVERSITY OF BOMBAY

DEPARTMENT OF CHEMICAL TECHNOLOGY

MATUNGA, BOMBAY - 400 019

Dated : 1st April, 1987

Applications are invited in the prescribed form for the following posts in the University Department of Chemical Technology:

Sr. No	*Designation of the Post*	*No. of Posts*	*Post reserved for SC/ST/DT and NT*	*Open Category*
1.	Professor of Food Technology	1	—	1
2.	Professor of Fermentation Technology	1	—	1
3.	Professor of Engineering	1	—	1
4.	Reader in Chemical Engineering	+1	—	1
5.	Sir Homi Mehta Reader in the Technology of Oils Fats & Waxes	1	—	1
6.	Reader (CAS in Applied Chemistry)	++1	—	1
7.	Reader in General Engineering	1	—	1
8.	Lecturer in Textile Chemistry	+2	—	2
9.	Singhanee Lecturer in Chemical Engineering	+1	—	1
10.	Lecturer in Chemical Engineering	1	***1	—
11.	Lecturer in Food Technology	1	**1	—
12.	Lecturer in Applied Bio-Chemistry	1	***1	—
13.	Lecturer in Tinctorial Chemistry	1	—	1
14.	Lecturer in Polymer Technology	1	***1	—
15.	Lecturer in Technology of Paints and Varnishes	1	—	1
16.	Singhanee Lecturer in Pharmacy	+1	—	1
17.	Lecturer in Pharmacognosy	1	—	1
18.	Lecturer in General Engineering	1	***1	—
18.(a)	Lecturer in (General) Engineering	1	***1	—
19.	Reader in Mathematics	+1	—	1
20.	Lecturer in Mathematics	+1	*1	—
21.	Lecturer in Physics	+1	—	1
22.	Lecturer in Colour Physics	+1	—	1
23.	Lecturer in Micro-Analysis	1	***1	—

The Pay Scales of the posts are as follows:-

Professor : Rs. 1500-60-1800-100-2000-125/2-2500;

Reader : Rs. 1200-50-1300-60-1900;

Lecturer : Rs. 700-40-1100-50-1600.

In addition to Pay, Dearness Allowance, House Rent Allowance and Compensatory Local Allowance will be paid according to the University rules. The total emoluments at the minimum of the respective pay-scales at the current rates of allowances are as follows :

Professor : Rs. 3405.35
Reader : Rs. 3075.35
Lecturer : Rs. 2124.00

A higher starting pay may be given to persons appointed to the posts of Professor and Reader in Special cases. All posts carry the retirement benefits according to the existing rules of the University. Teachers of the University are permitted to take up outside work according to the University rules. The appointments to the posts, except otherwise stated, will be made on probation for two years but the probationary period may be reduced by the Executive Council in special cases. Candidates belonging to the Scheduled Castes, Scheduled Tribes, Denotified Tribes and Nomadic Tribes so notified for the state of Maharashtra will alone be considered for the reserved posts. If suitable candidates from the Backward Classes are not available, other candidates will be considered for apppintment on purely temporary basis except for the posts at serial numbers 10, 11, 12, 14, 18 and 23. Candidates only from Backward Classes should apply for the posts at serial numbers 10, 11, 12, 14, 18, 18(a), 20 and 23.

The minimum qualifications prescribed for the posts at serial numbers 1 to 18a are as under :

Professor

An eminent scholar with published work of high quality, actively engaged in research. Ten year's experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding Engineer/Technologist with established reputation who has made significant contribution to knowledge.

Reader

Good academic record with a Doctor's degree in a relevent field. About five year's experience of teaching and/or research and development.

Provided further that candidates not possessing a Doctor's degree may be considered if they have to their credit equivalent research published work or design/development work of a high order either in the institution or in an industry.

OR

In the case of persons to be recruited from industry or professional field candidates should possess good academic record with recognised professional work of about seven years which should include innovation and/or research and development.

Lecturer

(a) Master's degree in appropriate field in Engineeting/Technology, (b) Consistently good academic record with a Bachelor's degree in Engineering/Technology. First class at Bachelor's degree and/or Master's degree level, (c) one year's relevant professional experience outside academic/research institutions.

Having regard to the requirements of emerging fields of Engineering and/or developing interdisciplinary programmes, the requirements of Engineering/Technology degrees may be waived in the cases of otherwise well qualified candidates.

Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired professional experience within a period of five years of his appointment, failing which, he will not be able to earn future increment until he fulfils this requirement.

The minimum qualifications prescribed for the posts at serial numbers 19 to 23 are as under :

Reader

Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods; or (iii) production of teaching materials.

About five year's experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding record or teaching/research.

Lecturer

(a) A Doctor's degree or research work of an equally high standard; and

(b) Good academic record with at least second class (C in the seven-point scale) Master's degree in a relevent subject from an Indian University or an equivalent degree from a foreign university.

Having regard to the need for developing interdisciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, candidate possessing a good academic record, (weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which, he will not be able to earn future increments until he fulfils these requirements.

The additional qualifications prescribed for the posts are as under :

1. Professor of Food Technology

Degree in first class in Food Technology and Doctorate in the field of Food Science, Food Technology or Food Chemistry with extensive experience in teaching and research in Processing and Preservation of Foods. Industrial Experience and/or Industrial consultation of minimum five year's is desirable.

2. Professor of Fermentation Technology

Degree in first class in Chemical Technology, Biochemical Engg, Chemical Engg., Microbiology and Doctorate in the respecfive field with extensive teaching and research experience in Fermentation Technology/Industrial Microbiology/Biochemical Engg. Experience of guiding Ph.D. research in any of these areas. Publications in Journals of standing.

3. Professor of Engineering

For the first alternative minimum qualifications Desirable : should be actively engaged in research in the fields of Mechanical/Electrical Structural and/or Production Engineering with Experience of teaching for graduate and Post-graduate level in the fields of design of Chemical Equipments, Plant Design and Mould Design. Knowledge in the area of management of workshop and Repairs/Maintenance of Equipments and Machines is preferable.

4. Reader in Chemical Engineering

Research Experience in the area of Separation Processes or multiphase reactions and reactors of Process Dynamics and Control will be desirable. Consulting experience with industry will also be considered desirable.

5. Sir Homi Mehta Reader in the Technology of Oils, Fats and Waxes

A candidate should have a doctorate degree in Technology of Oils, Fats and Waxes with minimum of five years research or industrial experience in the area.

OR

A candidate should have a doctorate degree in Organic Chemistry, Chemical Technology or Chemical Engineering but with a minimum of ten years industrial or research experience in the areas of Chemistry and Technology of Oilseeds, Oils, Fats and their derived products. Candidates who have experience in teaching and/or guiding research work will be preferred.

6. Reader (CAS in Applied Chemistry)

Research and Teaching experience in specialised area of applied Chemistry like Polymers and Coating is essential. Ability to guide research in the fields of Polymers Coatings and Adhesives is desirable.

7. Reader in General Engineering

Desirable : Postgraduate qualification

in Electrical Engineering with 7 years experience in Teaching/Research/Professional work.

8. Lecturer in Textile Chemistry

Research work in the field of Fibre Chemistry. Fibre Structure or Physico-chemical aspects of chemical processing.

9. Singhanee Lecturer in Chemical Engineering

Experience in Computer aided design/Process Dynamics and Control will be highly desirable.

10. Lecturer in Chemical Engineering

Experience in computer aided design is highly desirable.

11. Lecturer in Food Technology

Master's degree in Food Technology in first class with experience of teaching and/or research.

12. Lecturer in Applied Biochemistry

Master's degree in Food Technology or Ph.D. in Biochemistry with experience of research and teaching nutritional Biochemistry/Microbial metabolism/drug action and metabolism.

13. Lecturer in Tinctorial Chemistry

14. Lecturer in Polymer Technology

15. Lecturer in Technology of Paints and Varnishes

16. Singhanee Lecturer in Pharmacy

M. Pharm. in Pharmaceutical Chemistry or M.Sc. (Tech.) in Pharmaceuticals and Fine Chemicals with specialisation in Pharmaceutical Chemistry.

17. Lecturer in Pharmacognosy

Graduate and Master's degree in Pharmacy. The latter with specialisation in pharmacognosy. Desirable : Ph.D. in Pharmacy/Pharm. Technology and aptitude for research in natural products.

18. Lecturer in General Engineering

18.(a) Lecturer in (General) Engineering

Master's degree in Mechanical/Electrical/Electronic Engineering. Experience in Workshop and Laboratory activities/maintenance areas will be preferred.

19. Reader in Mathematics

Desirable : The candidate should possess Ph.D. in Applied Mathematics with specialisation in Mechanics of Solids, Fluids and MHD. Research publication in standard journals and aptitude to help research students in solving pure and Applied Mathematical problems. He should have 7/8 years experience of teaching Mathematics, Statistics Numerical analysis etc. to Engineering and Technology students.

20. Lecturer in Mathematics

The candidate should possess Ph.D. in Applied Mathematics, Fluid Mechanics, and/or similar field of specialisation of a recognised University.

He should have 4/5 years experience of teaching pure and applied Mathematics, Statistics Numerical Analysis to Engineering students of degree level.

21. Lecturer in Physics

At least two years experience in handling/maintenance of micro-processor based analytical instruments. Persons with an electronics and Computer background would be preferred. Experience in teaching Engineering and Technology students will be an additional qualification.

22. Lecturer in Colour Physics

At least two years post Doctoral experience in one or more of the following areas:

1. Electron Microscopy/X-rays.
2. Polymer Physics.
3. Solid State Physics.
4. Spectroscopy/Colour Measurement.

23. Lecturer in Micro-Analysis

Master's degree in Analytical Chemistry/Organic Chemistry/Chemical Technology with considerable experience of microanalytical work.

Explanation : (1) For determining "good academic record" the following criteria shall be adopted:

(i) A candidate holding a Ph.D. degree should possess at least a second class Master's Degree; or

(ii) A candidate without a Ph.D. degree should possess a high second class Master's degree and second class in the Bachelor's degree; or

(iii) A candidate not possessing a Ph.D. degree but possessing a second class Master's degree should have obtained first class in the Bachelor's degree.

(2) Candidates having secured marks more than the mid-point of the prescribed minimum marks for passing an examination in the second class and the prescribed minimum marks for passing an examination in the first class by a University shall be deemed to have passed that examination in the high second class.

The qualification regarding experience is relaxable at the discretion of the Executive Council on the recommendation of the Selection Committee in the case of candidates belonging to the Scheduled Castes, Scheduled Tribes, Denotified Tribes and Nomadic Tribes.

Eight copies of the application in the **prescribed form,** together with copies of certificates and the prescribed fee, should be sent in an envelope superscribed with "Application for the post of————————————" so as to reach the Director, Department of Chemical Technology, Matunga, **Bombay - 400 019 on or before Monday, the 4th May 1987.** Candidates from abroad, Andaman and Nicobar Islands and Lakshadweep may send their applications so as to reach the Director on or before **Monday, the 11th May 1987.** Candidates who are already employed shall send their applications through proper channel. The University reserves the right of accepting/rejecting applications received after the last date fixed for the receipt of applications. Incomplete and applications on plain paper will not be considered. Canvassing, direct or indirect, will be a disqualification.

A set of prescribed forms of eight application can be had at the counter of the Department on payment of Rs. 10/- in cash.

Request for supply of a set of eight prescribed forms by post should be made sufficiently in advance with self-addressed stamped (Rs. 3.80) envelope of the size of 27 x 12 cms. and Crossed Indian Postal Order or a Crossed Demand Draft on Scheduled Bank for Rs. 10/- drawn in favour of "the Director, U.D.C.T., Matunga, Bombay - 400 019 Payable at Bombay".

Note: *The post is reserved for candidates belonging to backward classes and is being advertised for the first time.

**The post is reserved for candidates belonging to backward classes and is being advertised for the second time.

***The posts are reserved for candidates belonging to backward classes and are being advertised for the third time.

+The posts are permanent. However, appointments are to be made on a temporary basis and are likely to be made permanent.

++Post No. 6 is subject to sanction of State Government.

S.P. Potnis
DIRECTOR

S.N.D.T. WOMEN'S UNIVERSITY

1, NATHIBAI THACKERSEY ROAD, BOMBAY - 400 020

Advertisement No. 2, Dated April 1, 1987

Applications are invited in the prescribed forms available at the University Office between 10.30 a.m. to 2.30 p.m. from Monday to Friday and 10.30 a.m. to 12.00 noon on Saturday, on payment of Rs. 5/- (M.O./Indian Postal Order/in Cash) for the following posts, to be filled in at the University Departments and its conducted Institutions at Bombay and Poona, so as to reach the undersigned on or before fifteen days from the date of its advertisement.

Sr. No. of Post 1	*Post and Name of the Deptt./Institution* 2	*No. of Post* 3	*Post Under Reserved Category* 4	*Medium of Teaching* 5
A	**S.N.D.T. Women's University Library, Bombay - 20**			
*1	Jr. Library Assistant	ONE	ONE	—
B.	**S.N.D.T. Women's University Extn. Library, Juhu Campus, Bombay - 49**			
1	Deputy Librarian	ONE	—	—
C.	**S.H.P.T. School of Library Science, Bombay - 20**			
1	Lecturer in Library Science	ONE	—	ENG
D.	**S.N.D.T. Women's University Branch Library, Poona**			
*1	Sr. Library Assistant	ONE	ONE	—
E.	**Centre of Education at PVDT College of Education, Bombay- 20**			
*1	Jr. Library Assistant	ONE	ONE	—
	PVDT College of Education, Bombay - 20			
2	Lecturer in Education	ONE	—	GUJ
F.	**C.U. Shah College of Pharmacy, Bombay - 49**			
1	Principal	ONE	—	ENG
G.	**Research Centre on Women's Studies, Bombay - 49**			
1	Reader	TWO	—	ENG
H.	**P.V. Polytechnic, Bombay - 49**			
1	Lecturer in English	ONE	—	ENG
2	Lecturer in Electronics	TWO	—	ENG
3	Head of the Dept. of Dress Making & Fashion Co-ordination	ONE	—	ENG
4	Lecturer in Anatomy Physiology	ONE	—	ENG
5	Lecturer in Food Technology	TWO	—	ENG
6	Lecturer in Ophthalmology	ONE	—	ENG
7	Lecturer in Textile Design	ONE	—	ENG
8	Lecturer in Physics	ONE	—	ENG
9	Instructor in Drafting, Cutting and Sewing	ONE	—	ENG
*10	Librarian	ONE	ONE	—
*11	Fitter	ONE	ONE	—
12	Draftsman	ONE	—	—
13	Head of the Department of Interior Design	ONE	—	ENG
14	Registrar	ONE	—	—
I.	**Dept. of Special Education Bombay - 49**			
1	Reader	ONE	—	ENG
*2	Supervisor	TWO	ONE	ENG
3	Research Associate	ONE	—	—

1	2	3	4	5
J.	**Dept. of Post Graduate Studies & Research at SVT College of Home Science, Bombay - 49**			
	Under Deptt. of Child Development			
1	Professor in Child Development	ONE	—	ENG
	Under Deptt. of Textile and Clothing			
2	Reader in Textile & Clothing	ONE	—	ENG
	Under SVT College of Home Science, Bombay-49			
*3	Lecturer in Foods & Nutrition	ONE	—	ENG
K.	**S.N.D.T. College of Arts & C.B. Shah College of Commerce & Economics for Women, Bombay - 20**			
*1	Lecturer in History	ONE	ONE	ENG/MAR
2	Lecturer in Psychology	ONE Temp.	—	ENG
*3	Lecturer in Economics	ONE Temp. (Half time)	ONE	ENG
4	Lecturer in Accountancy	ONE Temp. (Half time)	—	ENG
L.	**Deptt. of Post Graduate Studies & Research, Bombay - 20**			
	Under Deptt. of Sociology			
1	Professor in Sociology	TWO	—	One GUJ/ENG One MAR/ENG
M.	**Deptt. of Correspondence Courses, Bombay - 49**			
1	Assistant Director for Languages (English/Marathi/Gujarati)	ONE Temp. Tenure	—	—
2	Assistant Director for Social Sciences (Sociology/Economics/History/Politics	ONE Temp. Tenure	—	—
N.	**SNDT College of Education, Poona**			
1	Lecturer in Education (Science & Mathematics)	ONE	—	ENG/MAR

Minimum qualifications, salary scales, etc. of the post of teachers are as per approved U.G.C. scales and qualifications. Applications of Scheduled Castes Tribes/Other Nomadic Tribes, will be considered as per Government directives.

*Indicates Post under reserved category and will be filled by SC/ST/ONT candidates only if suitable candidates are found.

Dr. (Smt.) Usha Thakkar
REGISTRAR

INDIAN INSTITUTE OF SCIENCE

BANGALORE-560 012

Requires

ADMINISTRATIVE CONTROLLER (RESEARCH)

To be overall charge of the administrative and financial aspects of sponsored research schemes and projects.

Emoluments : Rs. 3,245/- p.m. (excluding HRA) at the minimum of the grade Rs. 1500-2500.

Grade likely to have upward revision when IVth Pay Commission recommendations become effective. Higher salary may be given to candidates with exceptional merit.

Qualifications and Experience

Postgraduate degree of a recognised University in Science, Engineering, Business Administration or a related area. Six years managerial experience as Administrator or Secretary to the Governing Body of Institution of Higher Learning, R & D laboratory or progressive science based industry in the area of modern management tools and techniques, effective interaction with scientific personnel, dealing with financial control, budgeting and computers and management information systems. Qualification and experience may be relaxed in the case of candidates with exceptional merit and proven ability.

Prescribed application forms and details can be obtained from the Registrar of Institute before **6-5-1987** on written requisitions accompanied by crossed IPO for Rs. 5/- drawn in favour of the Registrar, Indian Institute of Science (SC/ST candidates exempted on production of certificate from a competent authority) and self addressed, Rs. 5.40 stamped envelope of size 29 x 18 cms. Last date for receipt of completed application forms is **18-5-1987**. Applicants in the service of Government, Quasi-Government, Government aided or similar institutions must apply through proper channel.

IA(308) 16/87

REGISTRAR

GUJARAT AYURVED UNIVERSITY

Administrative Bhavan, Hospital Road,
Post Bag No. 4
JAMNAGAR

Applications are invited for the following vacant posts in the University.

Sr. No.	*Nane of the Post*	*Pay Scale Rs.*	*No. of Post*	*Section*
1.	Registrar	1600-2000	1	Main Office.
2.	Director of Botanical Garden.	1500-2500	1	Main Office.
3.	Professor 1-Basic Principles 1-Kaumarbhritya	1500-2500	2	P.G.T.
4.	Reader Shalya Shalakya	1200-1900	1	P.G.T.
5.	Senior Physician (Siddha)	1100-1600	1	P.G.T.
6.	Biochemist	1100-1600	1	P.G.T.
7.	Pharmacognocist	1100-1600	1	P.G.T.
8.	Pathologist	1100-1600	1	P.G.T.
9.	Darshanik	900-1500	1	P.G.T.
10.	Bhashashastri	900-1500	1	P.G.T.
11.	Pharmacy Superintendent	900-1500	1	Pharmacy
12.	Clinical Registrar— 1-Kayachikitsa	500-900	1	P.G.T.
13.	R.M.O.	700-1300	1	P.G.T.
14.	Tutor-Sharir Rachana	650-1200	1	U.G.

Details of pay scale, qualification, age and experience in the above posts should be submitted in the prescribed form which can be had by post from the Registrar, Gujarat Ayurved University, Jamnagar, by sending a self addressed envelope 11" x 5" size duly stamped of 1.40 Ps. alongwith a request indicating the name of the post so as to reach on or before **15-5-1987**. The last date for receipt of complete applications is **12-6-1987**. Only Indian Nationals need appply.

The University reserves the right to fill up or not to fill up the posts advertised and/or to call only selected candidates for interview.

R.M. Joshi
REGISTRAR

JAMIA MILLIA ISLAMIA

JAMIA NAGAR
New Delhi - 110025.
Advt. No. 1/1987-88.
Dated : 6-4-1987

Applications on the prescribed form which can be had from the Registrar's Office on any working day between 10.00 a.m. and 12.00 Noon or by sending a self-addressed and stamped (60 paise) envelope of 10 x 23 cms. are invited alongwith crossed Indian Postal Order or Bank Draft of Rs. 7/- (Rs. 2/- for SC/ST candidates) for the following posts so as to reach the Registrar by 1.00 p.m. on **8-5-1987**.

Ability to teach in Hindustani, Particularly Urdu is a desirable qualification for teaching posts and adequate knowledge of Urdu and Hindi is essential for non-teaching posts.

D.A., C.C.A., H.R.A., P.F. Gratuity, Pension and other benefits will be given as per Jamia rules.

Relaxation in any of the qualifications may be made on the recommendation of the Selection Committee in exceptional cases.

1. Two Professors (Rs. 1500-2500); one each in Geography and Chemistry (permanent).

An eminent scholar with published work of high quality and actively engaged in research. About ten years' experience of teaching and/or research. Experience of Guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Desirable

1. For the post of Professor in Geography: Degree or Diploma in Remote Sensing and Photo Interpretation.

2. For the post of Professor in Chemistry : Specialization in Chemistry of Materials/Solid State/Photochemistry Polymer/Spectroscopy/Theoretical and Physical/Quantum Mechanics or any other allied branch of Chemistry.

2. One Reader in Economics (Rs. 1200-1900) permanent

Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods; or (iii) Production of teaching materials.

About five years' experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding record of Teaching/Research.

3. Three Lecturers (Rs. 700-1600) : One each in English, History (permanent) and Bio-Sciences (temporary, but likely to be made permanent).

(a) A Doctorate's degree or research work of an equally high standard; and

(b) Good academic record with at least second class (C in the seven point scale) Master's degree in the relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing interdisciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record, (weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organization on the condition that he will have to obtain a Doctor's Degree or give evidence of research of high standard within eight years of his appointment failing which he will not be able to earn future increment until he fulfils these requirements.

Desirable

(1) For the post of Lecturer in History besides the specialization in Medieval/Modern Indian History, knowledge of History of U.S.S.R., Far East or European History.

(2) For the post of Lecturer in Bio-Sciences: Specialization in any of the areas of Neurophysiology, Developmental Biology, Microbiology, Endocrinology or Plant Physiology.

4. Two T.G.T.s (Rs. 440-750), under integrated scheme for disabled children, Jamia Middle School.

Essential Qualifications

(i) (a) T.G.T. (Science) : B.Sc. (Hons.) in Maths. or B.Sc. (Pass) in Physics, Chemistry and Maths. in IInd Division.

(b) T.G.T. (Science) : B.Sc. (Hons.) in Physics or B.Sc. (Pass) in Physics, Chemistry and Maths, with at least IInd Division.

(ii) B.Ed. in IInd Division.

(iii) Certificate in Special Education (Teaching of handicapped children preferably, the mentally retarded and the orthopaedically handicapped.

(iv) Knowledge of Urdu.

Desirable

(i) Command over English Language.

(ii) Keen interest in co-curricular activities and proficiency in such activities which may be useful for the handicapped children.

5. One Workshop Instructor in Welding and Sheet Metal (Rs. 440-750), Jamia Polytechnic (temporary but likely to be made permanent).

Matric or Secondary School Certificate with Certificate in concerned Trade awarded by NCTVT and 3-year's experience in Welding and Sheet Metal.

OR

Matric with 7 years practical experience Welding and Sheet Metal.

6. One Teacher in Islamiat (Rs. 330-560) Jamia Middle School (permanent).

Essential

Second class degree of a Madarsa recognized by the Jamia for undergraduate studies.

OR

B.A. (Pass/Hons.) degree in Islamic Studies.

Desirable

(1) At least High School/Higher Secondary or Senior School Certificate with English.

(2) At least two years experience in teaching of Islamiat in Middle or equivalent classes.

7. One Nurse (Rs. 425-640 — unrevised but likely to be revised) permanent

B.Sc. in Nursing, or Diploma from a recognized Institute and at least one year's experience of working in any Hospital. Candidates with experience in Surgical Obstrics, Gynaecology ward, and Operation theatre shall be preferred.

8. Clerk/Typists (Rs. 950-1500) permanent

(1) Matriculate.

(2) Qualifying in the prescribed test in English/Urdu/Hindi respectively and Typing (English) with a minimum speed of 35 w.p.m.

(3) Knowledge of Urdu.

Desirable

(1) Previous office experience (2) Knowledge of Hindi.

Note: (1) Candidates who have applied for the posts fessor in Chemistry No. 5/1986-87); T.G. Science, Middle School No. 11/1984-85 and 6/1 and Teacher in Islamiat No. 5/1986-87) need not again. They may, ho submit the additional in tion, if any, to the unders stating the post, befor last date mentioned abov

(2) 12.5% non-teaching post be filled from amongst bers of the Scheduled and 5% from amongst members of the Sche Tribes.

(3) The number of vacancies in the advertisement abo liable to be changed wi notice by the Jamia.

M. N.
REGIST

BHAVNAGAR UNIVERSITY

Gaurishanker Lake Road, University Campus,

BHAVNAGAR-364 002

Applications are invited in the prescribed form available from the University between 11.00 a.m. to 2.00 p.m. on payment of Rs. 3.00 in cash or by Crossed Indian P Order of Rs. 3.00 drawn in favour of "Registrar, Bhavnagar University, Bhavna together with self addressed stamped envelope worth Rs. 0.70 paise of 28 cms x 11 size for the following post so as to reach the undersigned on or before 15th May, 19

Sr. No	Name of the Post	Scale of Pay	Essential qualification and experience	Age L
1.	**Registrar**	Rs. 1600-80-2000	A master degree with atleast ten years experience in a responsible position of executive nature or a Bachelor's degree in second class with atleast fifteen years experience in a responsible position of executive nature. A degree in Law desirable. The experience should be of administrative nature preferably in a University or any other comparable establishment.	45 Y

Age limit is relaxable in case of the candidates who are already in service of Bhavnagar University or its Departments/Centres and the colleges which are mana by it.

The candidate who wants to apply should have fulfilled the educational quali tions and other requirements on the last date of the receipt of applications.

The candidates who are in service should apply through proper channel, other their application will not be considered. The incomplete or late applications will no considered. The candidates if called for interview will have to attend the same at own expenses.

The last date of the receipt of the application is **25th May, 1987.**

B. F. Sh
REGISTR

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House,
16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429.
Printed by **Navchetan Press (P) Ltd.** at **Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157**

University News

MONDAY, APRIL 27, 1987

Rs. 1.50

Punjabi University, Patiala, celebrates its Silver Jubilee on 30 April 1987. Photo shows Guru Gobind Singh Bhawan that houses the Department of Religious Studies and has earned the distinction of 'City Symbol'.

CLASSIFIED ADVERTISEMENTS

DEVI AHILYA VISHWAVIDYALAYA

UNIVERSITY HOUSE, INDORE-452 001

No. Estt./II(4)/86 **Dated : 10-4-1987**

Applications in the prescribed forms are invited for the following posts in the University Teaching Department of Computer Science so as to reach the undersigned on or before **18-5-1987**:

(i) Professor	One Post	U.G.C. Pre-revised Scale of Rs. 1500-12500.
(ii) Reader	One Post	U.G.C. Pre-revised Scale of Rs. 1200-1900.
(iii) Lecturer	Two Posts	U.G.C. Pre-revised Scale of Rs. 700-1600.

2. Application form together with details of qualifications, specialisation etc. can be obtained from the University Office on payment of Rs. 5/- in person or by sending a Crossed Indian Postal Order/Demand Draft of Rs. 10/- Payable to the Registrar, Devi Ahilya Vishwavidyalaya, Indore.

C.P. Modi
REGISTRAR (EXAMS.)

GUJARAT AGRICULTURAL UNIVERSITY

Sardar Krushinagar-385 506.

DIST. BANASKANTHA

Advertisement No. 3/87

Applications on prescribed form are invited for the following posts in Gujarat Agricultural University. The candidates who fulfil the qualifications and desire to apply may send their application forms alongwith six copies of authenticated bio-data through proper channel to the Registrar, Gujarat Agricultural University, Sardar Krushinagar-385 506, District Banaskantha.

Name of the Post and Pay Scale:	Discipline
Prefessor/Research Scientist and its equivalent : Rs. 1500-60-1800-100-2000-125/2-2500 plus other allowances as per university rules.	**Faculty of Agriculture** Agronomy, Agricultural Chemistry and Soil Science, Horticulture, Plant Breeding and Genetics, Plant Pathology, Extension Education, Agricultural Statistics, Agricultural Economics, Agricultural Meteorology, Nemotology, Bio-Chemistry. **Faculty of Veterinary & Animal Science.** Veterinary Medicine/Public Health, Livestock Production & Management, Veterinary Obstetrics & Gynaecology, Veterinary Pharmacology, Animal Physiology.

Application forms alongwith details regarding qualifications, experience and other terms and conditions for above posts can be had upto 27-4-1987 from the Registrar, Gujarat Agricultural University, Sardar Krushinagar- 385 506, Dist. Banaskantha on cash payment of Rs. 2/- (Money order will not be accepted) or by sending crossed Indian Postal Order of equal amount issued in favour of "Comptroller, Gujarat Agricultural University, Sardar Krushinagar", alongwith the self addressed envelope (23 x 11 cms) affixed with Rs. 2.20 paise postage stamps.

The applications duly completed in all respects should reach to the Registrar at above address on or before **22-5-1987** invariably through proper channel.

The candidates already in the service of this university may also apply through their respective officers in prescribed form with six copies of authenticated bio-data without I.P.O. All candidates called for the interview will have to attend the same at their own cost. Kindly note the following instructions:-

(1) Incomplete applications will not be considered.

(2) The university reserves its full right to fill up or not to fill up any or all the posts and to give or not to give appointment to the candidates selected by the Selection Committee.

(3) Canvassing in any form will completely disqualify a candidate.

(4) Selected candidates for above posts or category is transferable at any campus or centre of the university and between education, research and extension activities/project, and will have to resign from previous employment.

(5) The candidates who fulfil above qualifications and experience and who have applied in response to the advertisement No. 4/85, dated 5-7-1985 will have to apply again.

R.J. Patel
REGISTRAR

UNIVERSITY NEWS

VOL. XXV APRIL 27
No. 17 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor:
SUTINDER SINGH

Silver Jubilee Celebrations

Punjabi University

—A Profile

Gurmeet Singh Maan*

The Punjabi University at Patiala was established as a unitary though a multifaculty institution in 1962 for the furtherance of research and knowledge, for the projection of indigenous language into the system of instruction and for the cultural reassertion.

Inaugurated by Dr. S. Radhakrishanan, the then President of India, on June 24, 1962, the Punjabi University has touched pinnacles of glory in various scholastic activities and has rendered notable services to the society through its academic programmes, research projects, community services, sports etc. Apart from the traditional and established postgraduate departments and courses of study, the University has added many a new feature as the Department of Sri Guru Granth Sahib Studies, the Guru Gobind Singh Department of Religious Studies, Punjabi Literary Studies, Punjabi Planning and Development, Punjab Historical Studies, Anthropological Linguistics, Sports Medicine, Nuclear Physics, Television Engineering, Space Sciences and Forensic Science which have provided it the much needed spread and dimension.

The Department of Guru Granth Sahib Studies, established in 1965 to conduct a multi-faceted study and analysis of Sri Guru Granth Sahib, has taken the initiative to publish, in two volumes, the English translation of the Holy Granth. These are under publication. The Guru Gobind Singh Department of Religious Studies, besides instruction work, carries out research in theology and philosophy of six religions—Sikhism, Hinduism, Islam, Christianity, Jainism and Buddhism. To promote research on various aspects of religions of the world, "The Journal of Religious Studies" and "Nanak Prakash Patrika" are published by these Departments.

To further enlarge the scope of research in the field of religion, the University has undertaken a prestigious project of preparing an 'Encyclopaedia of Sikhism'. More than half of the work has already been completed which includes entries about the Sikh ethics, values, philosophy, history, literature, customs and traditions of different communities and holy places. Built under the quest of seeking unity among diversity and to end all kinds of doctrinal disputes, the Guru Gobind Singh Bhawan has acquired the distinction of becoming the city emblem.

Set up to augment research concerning the historical and spiritual heritage of Punjab, the Department of Punjab Historical Studies has published several volumes and outlined many a project for the future. The Department publishes "Punjab—Past and Present", a journal which has been a continuous source of guidance to researchers in the field of history.

The University, at present, conducts studies in Sanskrit, Urdu, Persian,

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**Public Relations Officer,*
Punjabi University, Patiala-147 002.

Arabic, French, German, Russian, Chinese and Tibetan. It proposes to introduce one-year courses in Tamil and Kashmiri. This makes the University a parliament of some of the world languages and testifies its catholicity of character.

To cater to the needs of the complex society, constantly presenting new socio-economic problems, the University has set up two centres—the Centre for Research in Economic Change and the Centre for Research in Social Change as inter-disciplinary units.

The University's Department of Economics has earned recognition as a Special Assistance Department of the University Grants Commission. It was included in the Commission's Programme of Special Assistance departments in 1977 on the recommendations of a high powered committee of the U.G.C.

As the University was established to provide Punjabi language, art and culture a chance of developing in proximity to diverse disciplines, a Translation Department was established in 1963 with financial aid from the Centre. The Department has got translated several significant volumes from other languages into Punjabi which has considerably facilitated the task of medium switch-over. The Directorate of Punjabi Planning and Development has launched and supported several programmes and projects for the development of Punjabi language by inspiring authors in different areas of interest and enquiry to write in Punjabi.

The Department of Punjabi Literary Studies, established to meet the requirements of higher education and research in Punjabi literature, has produced an English-Punjabi Dictionary in three volumes. Some of the other outstanding works which have been completed by the Department, or are nearing completion, include books on Punjabi and Persian Classics, Principles of Literary Criticism, Literary Genres, Literary Autobiographies and Translation of Historic Manuscripts from Persian into Gurmukhi. The scheme of producing a Punjabi Literary Dictionary has also been envisaged by the Department.

The issue of standardising spellings in Punjabi language has long been a cause of serious concern. A Punjabi Shabad Jor Kosh (spellings dictionary) in seven volumes has been prepared by the University in an effort to end unevenness in Punjabi spellings.

The Punjabi Reference Library has registered 13,000 books including some rare collections. Rare manuscripts and priceless personal libraries, donated by eminent men of letters like Bhai Kahan Singh Nabha Prof. Puran Singh, Principal Teja Singh, Norah Richards, Fauja Singh, Bhai Mohan Singh Vaid, I.C Nanda, Bhai Dit Singh, Takhat Singh, V.S. Suri, Shamsher Singh, Ashok, Sita Ram Bahri, Dhani Ram Chatrik have enriched the bibliographical resources of the University.

The University has decided to allow its students to use Punjabi as a medium of examination in most of the postgraduate subjects. At the undergraduate level the scheme was introduced in 1967. And now it has been decided to allow students to present their M. Phil. dissertations in Punjabi, if they so desire. The Directorate of Correspondence Courses, which has been imparting instruction in the regional language at the degree level, has now achieved the honour of starting M. Phil. Courses in Punjabi and English for the College lecturers. The University possesses complete published works of Prof. Puran Singh, Dr. I.C. Nanda and Dhani Ram Chatrik.

A measure of University's academic and literary programmes may be had from the quantum and quality of its publications. The University, during the brief space of its existence, has produced more than 1,100 volumes on Punjabi language, art and culture; humanities, sciences and other subjects. The titles also include learned and critical works, glosses and lexicons, old texts and manuscripts. The books published by the University's Publication Bureau excel not only in number but also in the quality of printing, designing and layout for which it won national awards in 1966 and 1971.

The University Library, a fine concrete and glass structure, today contains over 2.50 lakh volumes. The Braille Library houses more than 600 books, typewriters, tape recorders and cassettes for the use of blind students.

The two "guest" institutions, the I.A.S. Coaching Centre for Scheduled Castes and Tribes and the Northern Regional Languages Centre are valuable additions to the academic life of the University.

The Department of Business Management of the University has been preparing a cadre of adequately trained persons for responsible positions in Industry and Business. With a view to providing expert advice to the industry and business, the Department has set up a Consultancy Service. It also operates a number of Correspondence Courses in different management areas.

6 MAY 1987
C. F. T. R. I. MYS

Accepting challenges of the advancing society the University has set up a Nuclear Science Laboratory on the Campus. The procurement of a multicurie source is being negotiated with the Bhabha Atomic Research Centre to provide irradiation facilities in this part of the country. It has recently been resolved to start a one-year Computer Science and Application Course and a four-year B. Tech. Course, from the 1987-88 session. The University is also setting up a Computer Centre with financial assistance from the University Grants Commission. A scheme has also been finalised to set up an Audio-Visual Centre on the University Campus.

The University is introducing application-oriented courses in Business and Office Practice, Rural Development and Home Management as a part of the B.A. programme in its affiliated colleges.

To expand its jurisdiction of imparting knowledge, the University opened its Regional Centre at Bathinda in 1984 which now runs postgraduate courses in Punjabi, English and Economics. M. Phil. Courses in some of the subjects are likely to be started in near future alongwith some additions to the postgraduate courses. The number of colleges, affiliated to the University has gone up to 53 covering the Malwa belt of Punjab comprising the districts of Patiala, Sangrur, Ropar, Bathinda and Faridkot. The University now has 44 teaching and research departments running under 12 different faculties.

About 1,100 and 260 candidates have been awarded M. Phil. and Ph.D. degrees respectively during the last 10 years when the process of awarding these research degrees was started by the University. ☐

BIRLA INSTITUTE OF TECHNOLOGY

MESRA : RANCHI

Admission to 3-Semester Post-graduate Programme, 1987

Applications are invited for admission to the following 3-Semester Post-graduate courses leading to M.E. and M. Pharm. Degree :

Courses	Specialisations	
M.E. Degree Programme		
(i) Electrical Engineering	1. Control Systems	2. Power Systems
(ii) Electronics & Comm. Engg.	1. Microwave Engg.	2. Instrumentation & Control
(iii) Mechanical Engg.	1. Heat Power	—
(iv) Space Engg. & Rocketry	1. Aerodynamics	2. Rocket Propulsion
M. Pharm. Degree Programme	1. Pharmaceutics	2. Pharmaceutical Chemistry

Eligibility Requirements

(1) (i) **For M.E. Electrical, Electronics & Comm. & Mechanical Engg.**
A Bachelor's Degree in the appropriate branch of Engineering with a minimum of 60% marks in aggregate or Sec. A & B of the A.M.I.E. (India).

(ii) **For M.E. Space Engineering & Rocketry**
A Bachelor's Degree in Mechanical or Aeronautical or Chemical Engineering with a minimum of 60% marks in aggregate or Sec. A & B of A.M.I.E. (India) or A.M. Aero. S.T. or A.M.I. Ch. E. or equivalent.

(iii) **For M. Pharm**
A Bachelor's Degree in Pharmacy with a minimum of 60% marks in aggregate.

(2) Must have qualified at the Graduate Aptitude Test in Engineering (GATE).

Note: SC/ST candidates having a minimum of 55% aggregate marks are eligible.

15% seats are reserved for scheduled caste candidates and 7½% for scheduled tribes candidates. However, to be considered for admission they should have qualified at the GATE.

Students admitted to the above courses will receive Ministry of Human Resource Development Training Fellowship @ Rs. 1,000/- per month.

Application forms can be obtained from the Institute Office by sending a Postal Order for Rs. 25/- payable to the Registrar, Birla Institute of Technology, Mesra, at Mesra Post Office and a self-addressed envelope of size 280 mm x 125 mm having 1.10 stamp. Forms will be issued upto June 25, 1987. The name of the course for which a form is sought must be distinctly metioned in the letter.

Applications complete in all respect should reach the Registrar, Birla Institute of Technology, P.O. Mesra, Ranchi - 835 215. latest by **July 4 1987.**

J.B. Saksena
REGISTRAR & OSD

EDUCATION FOR WOMEN'S EQUALITY—II

M.S. Gore*

Need to Concretise New Scenarios

If we are to educate for women's equality we must help train our young to see what new scenarios are likely to emerge and what choices they may have to exercise. Simultaneously, through mass media, through entertainment as well as serious discussion through creative writing we must make the elder generation aware of the new expectations and new social situations that arise out of the pursuit of the value of equality between sexes.

Wife Role

The problems of a working woman have been seen often as primarily problems that can be met by creating supportive services in the form of creches, day-care centres, maternity leave facilities, parental leave, flex, time, etc. But there are more important attitudinal problems as well. If a married woman has to enter upon a job outside the home she has to see how to modify or meet the demands of her mother-housekeeper role. One pattern is to delay motherhood and minimize the housekeeping demands by employing a servant, by making the husband share some responsibilities, by adopting less exacting standards about housekeeping, by standardizing and simplifying meals, by eating more often out of the refrigerator or out of home, etc. If motherhood is to be delayed the husband—and in Indian homes—the parents-in-law have to be reconciled to this decision. Even if motherhood is delayed all the other adjustments mentioned above require acceptance from other members of the household.

If the adjustments are made at the behavioural level, but the basic perceptions have not changed, there will be problems. In most middle class homes where women work outside the home—neither the woman nor the other members of the family have evercome the expectation that the housekeeping role and all the decisions about meals, menus, home decoration, house cleaning, clothes washing, servant supervision, coping with guests still belong to the woman. The others may occasionally, or even regularly, help but the responsibility is that of the woman. So, under the best of circumstances, a working woman carries minimally two responsibilities—the job outside and the housekeeping job at home. At some point she experiences a conflict about the primacy to be given to one or the other. The other members cannot solve this conflict for her—unless she herself can get rid of a nagging sense of guilt. This guilt arises out of the concept of the feminine role she has imbibed—quite independent of the extent to which the other members of the family may help to minimize her actual physical strain.

If young males still see themselves as the sole breadwinners the chances are that they see the women as primarily housewives. They expect the woman not only to provide them with a comfetable home but also to perform the role of comforter, ego-booster and tension manager. The role expectations of the husband and the wife from each other and from themselves need to be modified to avoid bruised egos and facilitate greater mutual understanding. While one need not hold out women astronauts, women soldiers, career women as the only role models for women the possibility that some women might wish to pursue these occupational goals must be clearly borne in upon young males so that they would be better equipped to fashion out a life style mutually satisfactory to both husband and wife.

Even under normal circumstances there is an element of rivalry in the husband-wife relation. In the patri-local, joint-family tradition the equation is heavily tilted in favour of the male. The woman is insecure and seeks fulfilment and support in the love she elicits from her children. In the neo-local, nuclear household the element of rivalry is greater, but so long as the male is the breadwinner and the major point of contact with the outside world, he maintains a certain status superiority. When the wife enters the occupational arena and if she is competent at her job the rivalry becomes more acute. It is still difficult for the male to accept a situation in which his wife is more successful than he is either financially or socially. But the situation is made easier by the fact the additional income that the wife brings soon becomes a necessity as the cost of living and the standard of living of the two earner family increases. May be the male ego is fragile, but money is a great healer.

Mother Role

If the attitudes relating to the wife role are complex.

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*Former Vice-Chancellor, University of Bombay.

those relating to the mother role are even more so. In the case of a woman's relationship to her husband the woman tends to look upon herself as the aggrieved party and therefore she can blame the husband, rightly or wrongly, for her frustrations. Sometimes these frustrations arise because the husband is the proverbial incorrigible male, sometimes, they may arise out of the woman's own inabilities to live up to her idolized new role. In either case the husband—as the other adult person—can serve as a good flogging horse to vent one's grievances. In the case of the obligations of the mother role the likelihood is that the woman will tend to blame herself for being unable to cope with the demands of the new role. The conflict typically is one of how much primacy she should give to her career aspirations and how far she can subordinate her mother role obligations. Is it right for her to leave children on their own or with a servant or a baby sitter? What kind of influence will these other persons have on their child? Is it right to have only one child? What are the implications for the child of not having an older or younger sibling? What happens if the first child is a daughter in a family which lays great stress on having at least one son? How will the child respond to the fact of the mother being away for long hours? Will the child blame the mother? Will the child develop insecurities.

Apart from whatever may actually happen, the worry about what may happen increases almost in direct proportion to the mother's knowledge of modern psychology so that a relatively less educated or uneducated working mother probably experiences less role-conflict than an educated, middle class working mother. In this situation the presence of a grand-parent might sometimes help—but that again depends upon whether the mother considers the influence of the grand-parent to be a wholesome one.

The conflicts experienced by an educated, middle class working mother seem to be such that she can never win. If she stays at home to mother her child she feels guilty that she is wasting all the education and the professional equipment she has acquired, if she pursues a career she feels guilty of neglecting her child.

The creation of services to help a working mother to adequately meet her responsibilities reduces the strain at the level of time management and convenience but the services don't solve the problems at the psychological and social relationship level. The psychological anxieties originate in the disparities between the role expectations one has imbibed and one's actual role performance. These can be tackled by modifying culturally defined role expectations to suit the changing social context, by developing alternative role models, or by helping individuals to improve their role performance. Education should contribute to this process of modifying role definitions and development of alternative role models for husbands and wives, for mothers, fathers and children.

Work Place

Even at the work place a woman may face problems of relationships—though these might be only temporary. Women, if they are married, are in effect doing two jobs though they are paid for only one. As the level of routine jobs or clerical jobs they can leave their work worries in the office, but if they are working at the creative, competitive level in an executive or professional career the demands made on them can become heavy. They are at a disadvantage competing with men who are not expected to carry any domestic responsibilitties. Of course, as the proportion of working women increases, the proportion of men whose wives take total responsibility for the home will also decrease and a pattern of sharing home chores may evolve affecting working men and women equally.

The attitudinal problems relating to the work place revolve round the fact that career women who occupy senior positions in organizations or in the professions are still few. Men are not used to accepting women as superior officers though the number of such women is probably increasing. There are certainly many women who have risen to high positions in the Indian Administrative Service. There are not as many in the corporate organizations and fewer still in scientific establishment. But these numbers will rise and as this happens men as well as women will begin to look upon women officers or women executives as officers or executives rather than as women.

The other problem relates to the competitive demands a career makes on women. These demands are probably not as great in a career in government administrative service where careers largely follow a seniority pattern. But in scientific research or in corporate offices the career demands are heavier. In corporations the competition for reaching the top may be at a very personal level: in scientific establishment it may not be directly personal, but in both cases reaching the top calls for an almost total dedication of time going much beyond office hours and calling sometimes for personal qualities of ruthlessness not usually associated with women and for a severe restriction on the time a woman can make available to her family. The idea that a man is totally absorbed in his work and can leave the home entirely to his wife is socially accepted: the idea of a woman leaving the home totally to her husband—even if the children are grown up—is still not accepted. Women who follow their careers single-mindedly face a genuine problem in holding their family life together. While men may share responsibilities at home, the role of a husband as housekeeper, host, supervisor of the kitchen and the servants, as one who checks on or supervises children's studies, attends to them during their sickness and makes purchases for household articles like curtains or linen is not yet institutionalized. There is nothing genetic that makes women more equipped than men to attend to these duties, but almost universally working women are still expected to carry on with these domestic responsibilities. Man may help, but the responsibility is the woman's.

Another focus round which problems arise is the general expectation—also internalised by women—that if a working women marries she must marry someone who is more successful in his career than she is. A woman secretary may marry her boss but a male subordinate will hardly be looked upon as an appropriate mate by a woman executive. In social circles and at parties a man who has achieved less in life than his wife will be ill at ease and so will be the wife herself. This is the modern form of *pratiloma* marriage forbidden by the 'shastras'. Tensions are avoided if a successful woman marries a man from another walk of life where status ambiguity can reduce awkwardness.

The discussion of the newer roles and new role perceptions implied in women's equality undertaken in this paper is not exhaustive but illustrative. The object was to show that if education is to be one of the instrument for making the equality of women in the social sphere a reality and if the transformation has to be relatively smooth the attitudinal and behavioural modifications needed to be achieved need to be probed, understood and explained.

Curricular Implications

We may now turn to see what the *broad* curricular implications of this proposal to use education for promoting women's equality might be. Obviously, it will not be possible to detail out here what specifically should be taught at each level of formal education beginning from the pre-school stage through college edution. That task is best attempted by experts in curricula and syllabi formation. What will be attempted here is to indicate the major themes that need to be covered in formal education.

The first major theme or area that must receive attention is this question—Why women's equality? Some aspects and possible answers to this question have been suggested in this paper. In different ways and at different stages of education this question needs discussion. The dimensions of the concept of women's equality in family life, in social life, in education, in work life, in law and in politics need to be spelt out. But, additionally, one more fundamental issue needs discussion. Specifically, what does women's equality mean? Does it mean women should be the same as men, i.e. they should attempt to mould themselves in the image of men? Or, should they only have opportunity to grow to their maximum potential—a goal which may be inclusive of male life-styles but not restricted to them. This question has arisen in different forms wherever the goal of equality is sought to be pursued. Does 'equality' mean equal and the same or equal but different? There are raps in taking either of these positions dogmatically. But the important thing is that these issues should be discussed. Personally, I feel that there is a need for many optional models so that neither the woman who determinently follows a male career and life pattern nor, at the other end, the woman who follows the traditional housewife pattern need develop a sense of guilt. In fact, there are several intermediate combinations of individual life-styles that are possible and what is important is that the implications of the choice of any one of these should be understood and, so far as possible, consciously followed. This does not mean that all prospective brides and bridegrooms can or will arrive at a clear understanding of how they will live after marriage. There is nothing like a clear understanding before marriage—even in marriages of choice. Marriages evolve—sometimes they dissolve. But if the young people have an idea what types of problems are likely to arise and what types of solutions are available then this awareness will provide a measure of anticipatory socialization and will help in making mutual adjustments.

Apart from the theme of 'Why women's equality' and 'What does women's equality mean', the other area that could be covered in the curriculum is the 'Social Implications of Women's Equality'. Some of these implications have been indicated above but it might be useful to make students familiar with the variations in marriage rates and divorce rates in western societies which have a longer experience of women's equality. There is a whole set of controversies in this area. While one can't say that everything that is happening to marriage in western societies is necessarily the consequence of feminism or women's liberation movements, it would be equally erroneous to deny any link between the movement for women's equality and the higher divorce rates and/or lower percentages of men and women living in marriage at any given point of time.

Another possible consequence of women's employment and also the changing life-styles and expectations of young men and women in the west has been the falling birth rate and the problem of maintaining the total size of the population. In India and in many developing countries this need not constitute a problem in the immediate or foreseeable future, because what we are seeking is a fall in our birth rate. But this is a phenomenon that must be taken note of. It may have relevance for some of the smaller ethnic groups.

Falling birth-rate in this context is a consequence of the fact that women alone are capable of conception and child birth. A child born makes certain minimal demands on the mother and these demands interfere with the pursuit of work careers by women—especially in the middle class. In the agricultural as well as urban labour force women participate in large numbers without it seeming to affect population growth in women's work. But the urban middle class has different norms of child care and child upbringing, the occupational demands on the urban, middle class women are also different and, not uncommonly, she has to choose between having a baby and having a career. Domestic help and the three generation composition of the family marginally reduce these problems, but the choice is still a hard one. In the west variations of community care of children are being tried as aids to working mothers. The success of these experiments must be studied.

Still another area that should form a part of the curriculum is a discussion of the changed or changing role definitions for men and women. Much has been written—and rightly—about the male's perception of women as a sex object rather than as a person. Correspondingly, there are also efforts of making unreal images out of womanhood either as glamour girls or as goddesses and symbols of virtue. These perceptions would have to be brought closer to earth if stable relationships are to be possible. But this changed perception has to be accepted not only by men but by women as well. At the individual level these images are in any case shortlived, but in folklore they persist and folklore is an important socializing agent.

The new husband-wife roles will have to be based on a greater sharing and inter-changeability of tasks and a modification of the traditional status hierarchy within the family as between husband and wife, father and mother, son and daughter. This sharing model is likely to be difficult for the male, but even women may find that it is not all to their advantage because they may be called upon to accept new responsibilities. The chief problem, however, will be one of institutionalising a husband/wife role with a wide spectrum of possible, behavioural variations.

Finally, if women have to be prepared for an equal status they must have more information on the factual position regarding the number of women in the work force, the types of occupations in which they are distributed, the types of careers that are now available to them and the differential demand that these careers are likely to make upon their abilities and on their family life. It might even be useful to discuss—in co-educational classes of young persons—cases of successful adjustments and/or failures in the marriages where the woman is working.

Of late there has been some active discussion of the problems of sex bias in our text-books. Two approaches have been suggested to overcome this limitation. One is to request organizations like the NCERT to prepare new text-books wherein this bias would be eliminated. It would not be possible to remove sex-bias in materials that deal with historical or even contemporary social facts, but certainly this should be possible where new models for man-woman interaction or male and female status are likely to be discussed, suggested or created. The other way is to help teachers to handle existing text-books in a manner that through discussion children can see how sex bias enter almost unconsciously or as a reflection of social reality in the material of the text-book. Both these are complementary approaches. In either case, it is important that teachers themselves first overcome their own biases so that they can become instruments of change. As in the area of family planning or removal of caste discrimination so in the area of sex equality one cannot begin with the assumption that teachers are already free from traditional biases. There is a need to facilitate the acceptance of new perspectives by the teachers in areas of social change. Without their genuine acceptance of new values it is unlikely that education can be a major instrument of change. □

[Concluded]

Vision of a Vibrant Nation

Giani Zail Singh, President of India, addressed the Special Convocation of University of Jammu recently. In his address the President exhorted all sections of society, especially the educated, to build an atmosphere of peace, strength, harmony and prosperity. As opinion makers, the educated have to give lead to the society. Excerpts:

Education cultivates the human mind, irrigates the tracts of intelligence and whets the appetite for greater knowledge. There cannot indeed be any end to learning. All that an individual can grasp in his life-time is but a speck of wisdom on the vast canvas of the universe. Also there can be a hiatus between formal education and practical knowlege. One can attain real wisdom by application of knowledge gained in class rooms, libraries and laboratories.

We have inherited a bewitchingly beautiful country. It is a blend of reality and legend. Its historical monuments, temples of learning, places of worship, mountains and caves, rivers and valleys coupled with gigantic developmental projects and modern industries make it a most fascinating land on this earth. People speaking different languages and dialects, wearing traditional costumes, professing various faiths and plying diverse vocations present a rich mosaic of a united entity that is India.

When I see young and beaming faces here, I am filled with the vision of a vibrant Indian nation. I can discern the lustre in your eyes and feel the strength and vitality coursing through your vins. I can sense your keenness to take off on the road to progress, to serve humanity and to bring glory to the motherland.

The future of this country will be assured only when each young man and woman will be imbued with a sense of national pride. This pride and collective self-confidence are witnessed with all their glory, when the country is faced with foreign aggression. But a real test of solidarity and cohesion is seen in times of peace, when there are internal assaults by a few malcontents or self-seeking individuals working with or without foreign instigation with the aim of creating fissures and disrupting the tranquil tenor of society. The nation has to muster all its might to face such fissiparous forces and to frustrate their sinister designs.

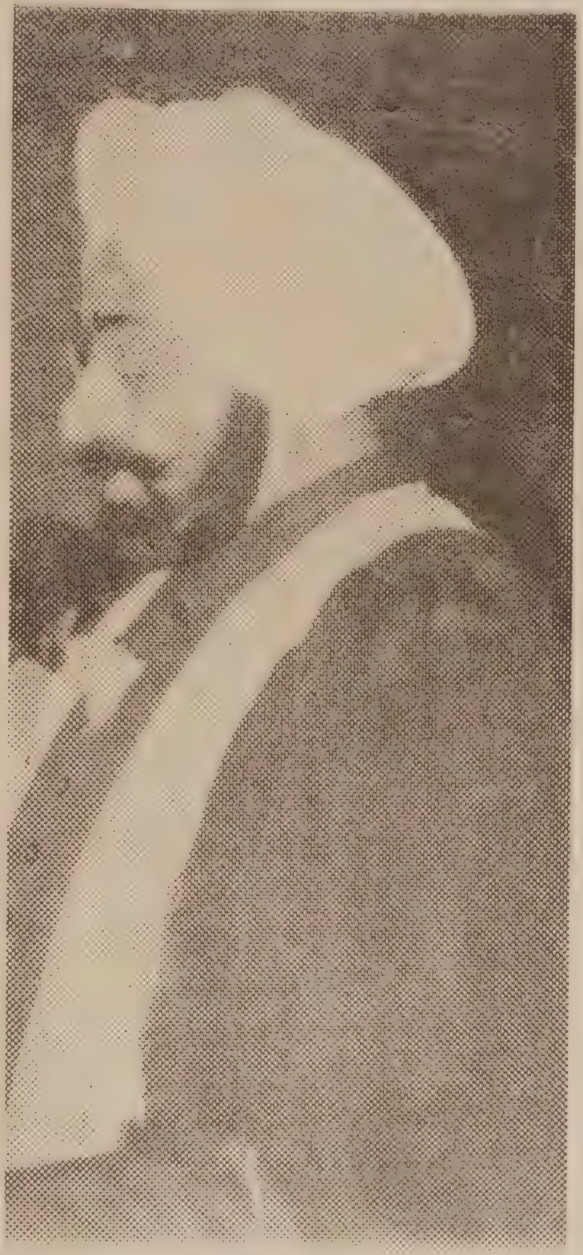
Diversity of views is the spice of democracy. Disagreement and expression of opinions freely, frankly and fearlessly are guaranteed in our Constitution. Public opinion is supreme in a democratic system and there should be no reason to challenge, much less negate, this supremacy. In our democratic set-up no one should arrogate to himself the right to trample over the sentiments of people under any pretext. Ours is a vast country embracing in its arms a sea of humanity. It is natural for the people to have regional aspirations. Reorganisation of States on linguistic basis was aimed at creating harmony and homogeneity. Freedom of speech and expression, freedom of conscience and the right to profess, practise and propagate one's religion are guaranteed to each citizen. These and other fundamental rights are inviolable, but at the same time there are fundamental duties, which have to be fulfilled. Every citizen has to uphold and protect the sovereignty, unity and integrity of the country. Each one of us has to promote harmony and the spirit of common brotherhood amongst all people of India transcending religious, linguistic, regional or sectional diversities.

In this framework the rise of differences should not be allowed to develop into disputes. And disputes should never be solved by bullet, as ballot is a more powerful and civilized weapon in a democracy. A genuine grievance of a section of the people should be tackled expeditiously and not left to become a festering sore. The method of conversion of the views of the Government by the people or of the people by the Government is much more preferable than the method of confrontation. In a democracy, masses are the real masters. The government and other organs of the State are the servants of the people. The masters cannot afford laxity. They have to exercise constant vigilance over the functioning of the governmental bodies. The government have to dischatge their obligations with alacrity, aplomb and devotion. The Administration must try to fill communication gap between different groups of people. And if a distrust arises, they would do well to make efforts to remove that distrust. At the same time there cannot be any compromise with the forces of disunity and disruption. No one can be allowed to sow discord between various cultural or religious groups. The governments have to guarantee the security of life and property of every person. For this, they have to inspire the people with confidence about their capacity and competence to govern. Firmness tempered with fairplay, and power combined with compassion would be far more effective in winning the support and sympathy of the people than by show or application of force.

In this sphere, the responsibility rests in no less measure on political parties, social groups and leaders of public opinion, who owe it to the country not to do anything which might harm the interests of the people, weaken the development of the society and injure the basic unity of the nation.

In our democratic State, the Administration should have empathy for the people and sensitivity to their sentiments and aspirations. It should be responsive to their needs and demands, should deal with their problems with a humane approach politely and expeditiously. Most of our people are poor, famished and unlettered. No doubt the country has made tremendous advances in agriculture, industry, science and technology. We are marching ahead on many fronts. Yet millions of our people are ill-fed, ill-clothed and shelterless. They are being crushed under the massive wheels of poverty. Millions, in thousands of villages, are still waiting for a single source of potable water. The biggest crunch is that of illiteracy. We have yet to travel a long distance to the fulfilment of the directive principle of free and compulsory education for all our children. We have yet to implement other welfare measures including assistance in cases of unemployment, old age, sickness and disablement. How can all this be achieved with the availability of limited resources? Shall we not take the problem of galloping rise in population most seriously? If all sections of our people do not address themselves to this gigantic problem, can we save ourselves from going down the precipice? We are living in two worlds—one of opulence and plenty, the other of destitution and penury. In a socialist society, these yawning gaps have to be narrowed down.

Women in our country are still a neglected lot. Our traditional society still assigns lower importance to the upbringing of girls than boys. Educationists would do well to take it upon themselves to secure equal status for women in the society. Given proper facilities and encouragement, women can do as good, if not better, as menfolk. Education should be so designed as to wipe off prejudices against women and to accord them equal opportunities of socio-economic development to enable them to contribute their maximum to nation building.



President Giani Zail Singh delivering the Convocation Address

In today's complex world, no nation can exist or progress in isolation. Apart from economic interdependence, there are other fields in which nations are equally affected by the policies and actions of others. An unfortunate nuclear accident in one country can endanger the health and life of millions in neighbouring states. One shudders at the consequences of a nuclear strife. One such misadventure can set at naught the strivings of the humanity over centuries for material advancement. India has pledged itself to harness nuclear energy to peaceful uses. There are rumblings, however, of a nuclear weapon being made in our neighbourhood. That would surely create a piquant situation for this country. One can only hope that good sense will prevail and we shall not be obliged to change our course, as that would not be in the interest of any one. India has been consistently working for world peace. We are reluctant to divert our precious resources to enter into an arms race with our neighbours. We should not be deflected from our peaceful path, but defence of the country has to take precedence over everything else. I am confident that in case of any aggression on our borders, the youths of our country would stand as one man to fight the aggressors and to save the honour, dignity and sanctity of the motherland.

We have to make India strong materially and spiritually. A united and strong India can be a powerful factor in the world. It can then contribute better for peace, equity and justice. It can then play more effective role in making this planet a better place to live in.

I would appeal to all sections of the people, especially the educated lot, to try to build an atmosphere of peace, strength, harmony and prosperity. Though the educated ones may be in a minority, yet they have greater responsibilities and obligations, as they are the opinion makers and have to give lead to the society. □

National Seminar on Physical Fitness & Sports Standards in Universities

The Association of Indian Universities will organise, in collaboration with the Mohan Lal Sukhadia University, a National Seminar on Physical Fitness and Sports Standards in Universities on 9-10 May 1987 at Udaipur.

The climate generated by IX Asian Games in 1982 at Delhi had raised our hopes and it was expected that India was on the way to greater achievements in international sports. The subsequent developments, especially the poor performance of Indian sportsmen at the international competitions, have proved it otherwise. "What ails Indian Sports?" is being debated everywhere, and the urgency for improving standards in sports and physical fitness is realised in every quarter.

The National Policy on Education has also emphasised the need for making sports and physical education an integral part of the curriculum in schools and colleges. A nationwide infrastructure for physical education, sports and games should be built up into our educational edifice. What the country really needs is a system which can promote an integrated development of body and mind. One of our major weaknesses has been that the schools, colleges and universities have not played their roles effectively in this direction. Most of them lack resources, their infrastructure is inadequate or sub-standard and sports facilities are scarce. Indeed, sports appears to have been placed in the lowest priority in the total scheme of school and college education. The utter neglect of the physical efficiency of our youth in educational institutions and non-availability of resources for sports have been responsible for this sorry state of affairs. It is proposed to identify various problems which impinge upon the sports performance and to deliberate on issues that have significant bearing on mass awakening and motivation for promoting sports and physical education.

Themes

The deliberations at the Seminar will cover the following themes:

1. Sports Infrastructure in Rural and Urban Areas

The discussion will focus on the availability and requirement of sports facilities in different areas—urban and rural, humid and dry, plains and hills. The provision of minimum unit requirements of facilities, depending upon the popularity of various games and sports in the specific areas, will also be discussed.

2. Student Motivation and Incentives

To encourage mass participation of youth in sports activities, it is imperative to motivate them through a chain of incentives like scholarships, bursaries, freeships, and special diet allowances. The feasibility of making sports an academic discipline, preferential treatment in job opportunities and related question of raising the status of physical education would be debated.

3. Coaching and Competitions

For success in sports competitions, coaching plays a crucial role. The discussions under this theme would focus on the assessment of the present system of coaching for national and international competitions. The question of evolving a core curriculum for physical education, the standardisation of syllabi and its adoption throughout the country will be discussed. The scheduling of the domestic competitions would also be reviewed.

4. Linkages between Sports and General Education

The need for providing effective linkages between sports and general education on the one hand and sports activities in schools with the colleges/universities on the other, cannot be under-estimated. While the schools are primarily responsible for providing the basic inputs to the sports requirements of the higher level institutions, the latter are responsible for improving the efficiency and proficiency in sports in schools by way of providing highly trained instructors and coaches. Ways and means of establishing such linkages would be explored so that the goals envisaged in the New Educational Policy are realised.

5. Norms of Physical Fitness

A minimum level of physical fitness is necessary for any individual to effectively participate in any game or sports and, in the larger context, to be a good all-round student. The methods of improving general health and the question of specifying norms of physical fitness for different age groups of students and for various games will be debated. Modern concepts of sports science will also be discussed.

PROGRAMME

May 9, 1987 (Saturday)	
Registration of Delegates	9.00 A.M.
Inauguration & Exhibition	10.00 A.M.
Session I	11.15 A.M.
Session II	2.30 P.M.
May 10, 1987 (Sunday)	
Session III	9.00 A.M.
Session IV	11.15 A.M.
Session V	2.30 P.M.
Valedictory Function	5.15 P.M.

VENUE

The venue of the seminar will be Mohanlal Sukhadia University, Udaipur.

PARTICIPATION

Delegates from universities, colleges, organisations dealing with sports and physical education, Department of Youth Affairs and Sports, Netaji Subhash National Institute of Sports, Lakshmibai National College of Physical Education and Sports Authority of India are invited to participate in the seminar.

EXHIBITION

An exhibition of literature on sports and physical education such as books, magazines, journals, charts, models and other materials which might present the recent advances in sports science and sports medicine will be organised on the occasion.

The official langugage of the seminar will be English.

Further details can be had from the Convener.

CONVENER

Shri G.S. Sivia
Deputy Secretary (Sports)
Association of Indian Universities
AIU House, 16 Kotla Marg
New Delhi - 110 002.
Telegram : "ASINDU"
Telephones 3312305, 3313390,
3312429, 3310059.

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REGISTRAR

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
May 9-10, 1987	**National Seminar on Physical Fitness and Sports Standards in Universities**	**To identify various problems impinging upon sports performance and to deliberate on issues having significant bearing on mass awakening and motivation for promoting sports and physical education.**	**Association of Indian Universities (AIU) in collaboration with Mohanlal Sukhadia University, Udaipur.**	**Shri G.S. Sivia, Dy. Secretary (Sports), Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi - 110002.**
May 19-21, 1987	XVIII Indian Sociological Conference	Theme: Sociology and Social Transformation in India.	Department of Sociology, North-Eastern Hill University, Shillong.	Prof. M.N. Karna, Organising Secretary, XVIII Indian Sociological Conference, Deptt. of Sociology, NEHU, Shillong-793014.
June 1-15, 1987	Course on Computer Applications in Social Sciences	To expose the participants to fundamentals of computer, computer processing, FORTRAN Language and foundation of data processing and quantification methods.	Centre for Social Studies, Surat.	The Course Director, Centre for Social Studies, Gujarat University Campus, Surat - 395 007.
June 1-30, 1987	Summer School in Plasma Physics	To give broad exposure of plasma physics to the students of M.Sc. in Physics and fresh research scholars	Department of Physics, Ravishankar University, Raipur (M.P.)	Dr. S. Guha, Convener, Dept. of Physics, Ravishankar University, Raipur (M.P.)
July 3-4, 1987	National Symposium on Development of India's Mineral & Fuel Resources	To discuss the entire spectrum of mineral sector—metallic and non-metallic minerals, coal, ground water, oil and natural gas.	Department of Applied Geology, Indian School of Mines, Dhanbad.	Prof. K.L. Rai, Convenor, Diamond Jubilee National Symposium, Department of Applied Geology, Indian School of Mines, Dhanbad - 826004.
July 6-8 1987	National Symposium on Past, Present & Future of Bhopal Lakes	To provide an intredisciplinary forum for evolving suitable strategy for the maximum utilization and conservation of Bhopal Lakes.	Dept. of Zoology, Govt. Motilal Vigyan Adarsh Mahavidyalaya, Bhopal.	Prof. S.K. Kulshrestha, Director, MAPCOST Seminar, Dept.of Zoology, M.V.M. Bhopal - 462 008
July 22-24, 1987	15th National Conference on Fluid Mechanics and Fluid Power	To bring together researchers and designers, working in diverse fields like Mechanical, Civil, Power, Aeronautical and Chemical Engg. besides Mathematics and Physics to review the state of the art and the recent developments	Regional Engineering College, Srinagar in collaboration with National Society of Fluid Mechanics and Fluid Power.	Dr. A.M. Bhat, Organising Secretary, 15th National Conference on Fluid Mechanics and Fluid Power, Department of Mechanical Engineering, Regional Engineering College, Srinagar 190 006.

COSIST Assistance for CUSAT

The University Grants Commission (UGC) has selected the Physics and Electronics Departments of the Cochin University of Science & Technology for an additional assistance of more than Rs. 1 crore. Each of these departments will get Rs. 50 to 60 lakhs for building up necessary infrastructure like additional teaching posts, purchase of books, journals and sophisticated equipment.

This assistance given under the COSIST (Committee on Strengthening of Infrastructure of Science and Technology) programme is in addition to the special assistance of Rs. 26 lakhs to the Physics Department recommended by the UGC Visiting Committee recently, for upgrading the Department into a Centre of Excellence, and the regular assistance under the Seventh Plan. For the Electronics Department this assistance is in addition to the special grants sanctioned by the Union Ministry of Human Resource Development and the regular UGC grants.

The COSIST assistances is for helping the departments that have already achieved high performance to do even better and raise themselves to international levels in research facilities and quality of postgraduate education. The Cochin University Departments are the first two in South India to receive this unique recognition.

With this, the total assistance allotted by the UGC to this University so far under the 7th Plan comes to Rs. 2.76 crores. This includes the regular assistance of Rs. 1 crore to the science departments and Rs. 50 lakhs for the technology sector.

Museum of Simple Technology

The United Nations University, Tokyo's Centre for Scientific Knowledge for Self-Reliance in Paris, has entered into an agreement with Anna University to set up a Museum of Simple Technology at University Campus as an additional component of the Centre for Appropriate Technology, Anna University. This marks the beginning in a modest way of the follow up of a suggestion made by the former Prime Minister of India, late Mrs. Indira Gandhi to the U.N. University for promoting self-reliance among developing nations.

The museum is being set up with the object of presenting in simple terms technologies relevant to the underprivileged people and transmitting them to the beneficiaries through the universal language of charts, pictures and exhibits which are easily understood. The building housing the exhibits is itself an example of simple technology suitable for shelters which villagers themselves can build on the basis of self help using locally available materials. The important feature is that though the techniques and methods are such as to be used by the common people, they are derived from advanced technologies.

The United Nations University team consisting of Mr. Yona Friedman, Miss Eda Schauer, has been camping at Anna University since 24 November and are organising the implementation of the project. Prof. G.S. Ramasamy, former Director of the Structural Engineering Research Centre, Madras, and former Chief Technical Adviser, UNIDO is acting as Adviser to the team.

Society for Scientific Values

One hundred and seven top scientists of India have formed a Society for Scientific Values (SSV) "to promote integrity, objectivity and ethical values in pursuit of science." Dr. A.S. Paintal, Director-General of the Indian Council of Medical Research and Founder President of the SSV, said the society's aim was to evolve a healthy scientific environment "free from prejudices, dishonesty, propagation of unsubstantiated claims, suppression of dissent, showmanship, sycophancy and political manipulation."

The SSV would promote, by personal and collective efforts, "the ethics and norms of science not only for the progress of science and technology in the country but also for national character," he said.

The society is the first of its kind in the world, and its membership is open only to scientists who had not plagiarised, made false claims, or indulged in any kind of dishonest activity.

New Deptts at Kurukshetra Varsity

The University Grants Commission (UGC) is reported to have accorded sanction to Kurukshetra University to set up three more departments—geology, anthropology and tourism. It has also agreed in principle to the restructuring of the Department of Social Work.

There is a proposal to set up a department of criminology of the university on the premises of the Police Training College, Madhuban. The Haryana Government has sanctioned the posts of a Reader and four Lecturers for the purpose

The department will initially impart training to in-service persons in the fields of criminal jurisprudence, social administration, attitude and behaviour, rehabilitation and the study of anthropological variants. Later it is proposed to extend the scope of the department to forensic science.

The Union Ministry of Tourism is also understood to have agreed to help the university in building up the proposed department of tourism by providing Fellowships.

German Equipment for Anna University

Mr. Gunther Schodel, Ambassador of the Federal Republic of Germany in India, presented the first consignment of equipment for research and development work in the Anna University to the Governor of Tamil Nadu and Chancellor of the University, Mr. S.L. Khurana. This is part of the contemplated aid of Rs. 4.5 crores from West Germany to the University.

Costing about Rs. 92 lakhs, the equipment will aid the Institute of Remote Sensing in the university in large scale mapping of urban areas, contour mapping of hilly regions, traffic accident investigation and mapping of archaeological monuments.

Speaking on the occasion, Shri Khurana referred to the great potential of high technology such as remote sensing in development work.

Dr. V.C. Kulandaiswamy, Vice-Chancellor, said the equipment would benefit the industrial engineering department and the electronics and communication department. He hoped the printing technology department would also be included in the approved list for provision of funds.

Medical & Health Education Commission

The Union Government is reported to have decided to set up a Medical and Health Education Commission as recommended by the Medical Education Review Committee.

According to the Minister of State for Health and Family Welfare, Ms. Saroj Khaparde, this autonomous body would be responsible for coordination, planning and implementation of various medical and health education programmes in all branches of health sciences, planning for the development of health manpower, allocation of funds and disbursement of grants to medical and health institutions.

Best Arts College of Gujarat

Anand Arts College, Anand run by Shri Ramkrishna Seva Mandal and affiliated to Sardar Patel University, has been adjudged the best College of the State by the Gujarat Government amongst arts colleges for the year 1983-84 and has been awarded cash prize for its excellent academic achievements. Earlier the UGC had selected the college for COHSSIP and had granted Rs. 3 lacs for conducting various academic projects.

The college offers 'Co-operation' as a special subject in B.A. with eleven papers in the integrated course besides offering other eight special subjects.

Diploma in Journalism

The Himachal Pradesh University proposes to introduce one-year diploma course in Journalism and Mass Communication. A four-member Board of Studies has been constituted to work out further details.

B.Sc. in Applied Botany & Biotechnology

The Gauhati University proposes to introduce a new B.Sc. course in Applied Botany and Bio-Technology from the next academic session. To be introduced for the first time in the North Eastern region, the course is different from the B.Sc. course in Agricultural Botany.

Central Assistance for CUSAT

The Ministry of Human Resource Development, Government of India, have sanctioned a special assistance of Rs. 28 lakhs to the Cochin University of Science and Technology.

This special assistance includes (1) Rs. 10 lakhs for modernisation of laboratories and workshops of the Department of Ship Technology; (2) Rs. 10 lakhs for strengthening and expansion of facilities in the Department of Electronics; and (3) Rs. 8 lakhs for strengthening the Centre for Information Science and Microprocessor Applications in the Department of Electronics.

The Ministry of Defence has sanctioned Rs. 16 lakhs towards expenditure for conducting M.Sc. Computer Software programme.

We Congratulate....

(1) **Dr. Gopalji Trivedi who has taken over as Vice-Chancellor of the Rajendra Agricultural University, Pusa (Bihar).**

(2) **Dr. Kantibhai Chaturbhai Patel who has taken over as Vice-Chancellor of the Sardar Patel University, Vallabh Vidyanagar.**

S.S. Bhatnagar Awards for 1985 & 1986

Nineteen Scientists have been awarded the Shanti Swarup Bhatnagar Award for the years 1985 and 1986. The award carries a citation and a cash prize of Rs. 20,000 to each awardee and is given for specific contribution in the field of physical sciences, chemical sciences, biological sciences, medical sciences, mathematical sciences, engineering sciences and earth sciences. The awardees are:

Physical Sciences: Prof. Narendra Kumar (IISc, Bangalore), Prof. Kehar Singh (IIT, Delhi)—1985; and Prof. P.K. Kaw (Institute of Plasma Research, Gandhi Nagar, Gujarat)—1986.

Chemical Sciences: Prof. P. Balram (IISc, Bangalore)—1986.

Biological Sciences: Dr. C.M. Gupta (CDRI, Lucknow), Prof. V. Vijayan (IISc, Bangalore)—1985; and Prof. Madhav Gadgil (IISc, Bangalore)—1986.

Medical Sciences: Dr. D. K. Ganguly (Indian Institute of Chemical Biology, Calcuta)—1985; and Prof. S.S. Aggarwal (Sanjay Gandhi PG Institute of Medical Sciences, Lucknow), Dr. Pradeep Seth (AIIMS, New Delhi)—1986.

Mathemetical Sciences: Prof. S.K. Malik (Punjab University, Chandigarh), Prof. R. Parthasarthy (TIFR, Bombay)—1985; and Prof. T. Parthasarthy (ISI, New Delhi), Prof. U.B. Tewari (IIT, Kanpur)—1986.

Engineering Sciences : Prof. P. Ramachandran Rao (BHU)—985; and Prof. M.L. Munjal (IISc, Bangalore)—1986.

Earth Sciences: Dr. R.N. Singh (National Geophysical Research Institute, Hyderbad)—1985; and Prof. A.K. Gupta (University of Allahabad), Dr. K. Mallick (National Geophysical Research Institute, Hyderabad)—1986.

AIU News

VCs to Discuss Modernisation of University Management and New Educational Tribunal

With the rapid growth of education during the last few decades, the university management system is going through severe strains. Time has come for the educationists to review what changes are necessary in the traditional management system of the universities to cope with the current demands for performance. New Education Policy 1986 places added responsibilities on the university administrators for achieving the defined goals of the new policy.

Association of Indian Universities has accordingly planned a series of group discussions and workshops for different categories of university administrators during 1987-88. The first programme in the series will be a two day group discussion of Vice-Chancellors on Modernisation of University Management from April 30, 1987. It will be followed by one-day seminar on the proposed Central Educational Tribunal on May 2, 1987. The venue will be the Indian Institute of Technology, New Delhi. About 60 Vice-Chancellors are expected to participate in the discussions. Eminent educationists like Prof Yash Pal, Prof M.V. Mathur, Prof. G. Ram Reddy, Prof Ramaranjan Mukherjee, Prof Sampath, Prof R. Takwale, and Prof. Moonis Raza have agreed at act as panelists. Justice D.A. Desai, Chairman, Law Commission will Chair the Seminar on Central Educational Tribunal.

News from Abroad

History of Sciences Prize

The Third World Academy of Sciences (TWAS) has instituted a prize of US $ 10,000 to be awarded to the best research essay highlighting the scientific achievements of a Third World scientist prior to the 20th century, whose work has not been hitherto recognised. The essay, in English language, between 20,000 and 50,000 words, should summarise the major contributions of the scientist and should indicate in what way the achievements are linked to the sources of modern scientific thought. Evidence should be adduced as to the originality and relevance of the Third World scientist's achievements. The essay selected for the award of the prize will be published in the form of a book by the TWAS. Closing date for receiving essays is **30th October 1987**. Further information can be had from:

TWAS History of Sciences Prize
C/o International Centre for Theoretical Physics.
P.O. Box 586, 34100 Trieste, Italy.

News from Agril. Varsities

Biological Control of Plant Diseases

A three-day workshop on "Biological Control of Plant Diseases", sponsored by the University Grants Commission, was organised by the Department of Plant Pathology, Tamil Nadu Agricultural University (TNAU), Coimbatore on March 10, 1987. Inaugurating the workshop, Dr. V. Rajagopalan, Vice-Chancellor of TNAU called upon the plant pathologists to pursue the results of biological control in farmers' fields. A new method of controlling plant diseases, he said, was found promising for several crop diseases. The TNAU had developed new rice, pigeonpea and blackgram cultures resistant to tungro virus, sterility mosaic and root rot respectively.

Dr. N. Shanmugam, Registrar of TNAU in his presidential address said that crop diseases caused an annual loss of Rs. 5,000 crores. Diseases posed a serious threat for increasing the yield of oilseeds and pulses. Dr. A.N. Mukhopadyay, Professor & Head, Department of Plant Pathology, G.B. Pant University of Agriculture and Technology in his key-note address explained about various methods of biological control that had been translocated to farmers' fields for controlling diseases like damping off of tobacco.

At the valedictory function, Dr. S. Jayaraj, Director, Centre for Plant Protection Studies, TNAU emphasised the need for taking research findings to the farmers' fields by laying out on-farm trials. Dr. V. Raghunathan, Deputy Director, Directorate of Plant Protection, Quarantine and Storage, Government of India, pointed out that the need based application of fungicides should be given priority for disease management.

New Broadcasting Device

A new device for broadcasting fertilizers, seeds and granular insecticides has been developed by the Department of Farm Machinery, Tamil Nadu Agricultural University (TNAU), Coimbatore. The device is hung in front of the operator and the material to be broadcasted is filled in instalments of 3 to 5 kg in a plastic hopper. While rotating a handle, the operator has to walk in the field. The material is spread over a width of 5 to 10 metres depending on the type of material. We can change the dose of material applied per hectare. The broadcasting device is specially suited for applying fertilizers like urea or NPK mixture in paddy fields, not planted in rows. Rainfed seeds such as cumbu and sorghum can be uniformly broadcasted by the device. When compared to the manual broadcasting method, the broadcasting device is capable of covering 3 to 4 times area and at the same time, it uniformly distributes the material over the entire area. The unit weighs 3.6 kg and costs about Rs. 750.

Sports News

Varsities Junior Hockey Team

A 16-member Indian Universities Junior Hockey (M) Team has been selected at the two day Selection Trials held at Aligarh Muslim University on April 16 & 17, 1987. The team will participate in the Junior National Hockey Championship scheduled to be organised at Bhopal from June 1 to 14, 1987. Sarvjit Singh of Meerut University will lead the team. Other members are: Hasan Ali Khan (Bhopal Univ), Quamar Ali (Meerut Univ), Sunil Kumar Pathak (Meerut Univ), Joga Singh (Delhi Univ), Mishkaut Siddiqui (Lucknow Univ), Pervesh Tyagi (Meerut Univ), Jagdish Chandra (Lucknow Univ), Moizuddin (Gorakhpur Univ), Mohd. Shakeet Khan (Rohilkhand Univ), Mohd. Yaseen (Meerut Univ), Modh. Safdar Khan (Bhopal Univ), Lokesh Sharma (Bhopal Univ), Syed Mohd. Asad (Aligarh Muslim Univ), Pradeep Kumar Sharma (Meerut Univ), and Vivek Pisal (Jiwaji Univ).

A Coaching Camp for the selected team will be organised at Aligarh Muslim University from May 18, 1987 under the supervision of the coach, Mr. Bhagat Singh.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Psychology

1. Dhir, Poonam. *Managerial effectiveness in relation to personality motivation, organisational commitment and quality of working life.* Panjab. Dr. Meena Seghal.

2. Fuljit Kaur. *Adolescents loneliness, correlates, attribution and coping.* Panjab. Dr. V.V. Upmanyu.

3. Malhotra, Harinder. *A study of organisational commitment and job involvement in relation to role stress-protestant work ethic, organisational climate and orientation.* Panjab. Dr. Promila Vasudeva and Dr. J.M. Jerath.

4. Manveen Reen. *Correlates of depressive symptomatology in married women.* Panjab. Dr. V.V. Upmanyu.

Sociology

1. Aneeta Kumari. *A comparative study of the working conditions in the informal and formal sector industries in Mohali and Chandigarh.* Panjab. Dr. K. Gopal Iyer.

2. Kapur, Shabad Kumari. *Women in information professionals : A study of the career orientation and job commitment of librarians in Panjab.* Panjab. Prof. (Mrs.) K.P. Singh and Miss A.N. Anand.

3. Mittal, Alka. *Attitudes of industrial workers toward work.* Panjab. Prof. P.N. Pimplay.

4. Sukhbir Pal Kaur. *Social origins of agrarian and social issues in rural Panjab.* Panjab. Dr. K. Gopal Iyer.

Political Science

1. Amir Sajedi. *Iran's relations with Arab states of the Gulf excluding Iraq: A study of flexibility in diplomacy,* 1971-1981. Panjab. Prof. M.M. Puri.

2. Dwaorgu Omenihu Chiemela. *Politics of Nigeria: A study of its leadership pattern* 1960-83. Panjab. Dr. T.R. Sharma.

3. John, K.V. *Factionalism in Kerala politics since* 1977 *: A comparative study of Leftist, left of centre and Rightist parties,* Kerala. Dr. K. Raman Pillai.

4. Shriram, Suman Rani. *Changes in the boundaries of states in India : A study of constitutional problems with special reference to Panjab.* Panjab. Dr. Iqbal Nath Choudhary.

5. Subhash, T.S. *Telugu Desam Party: A study of sub-nationalism in India.* Kerala. Dr. P. Vijayaraghavan.

6. Yadav, Yogendra Singh. *Socialist discourse in modern India: A theoretical analysis.* Panjab. Dr. T.R. Sharma.

Economics

1. Rajindarpal Singh. *Land tenure efficiency relationship in Panjab agriculture: An empirical investigation.* Panjab. Dr. H.S. Shergill and Dr. S.S. Grewal.

Law

1. Kapoor, Suresh Chand. *Laws and customs of marriage and divorce relating to the scheduled tribes of Himachal Pradesh: A sociological study.* HP. Dr. I.P. Massey.

2. Kiran Pal Singh. *Access to justice : Public interest litigation and judicial activism in India.* HP. Dr. Amar Singh Sanlekyan.

3. Mehta, Rama. *Impact of legislative and administrative measures in the improvement of status of women and fulfilment constitutional mandate in Shimla District of Himachal Pradesh.* HP. Dr. C.L. Anand.

4. Radhey Shyam. *Constitutional safe guards, their implementation and impact on scheduled castes in Himachal Pradesh: A critical study.* HP. Dr. P.L. Mehta.

5. Sreenivasan, P.S. *Right to freedom of conscience and religion in India.* Kerala. Dr. N.K. Jayakumar.

6. Sreekumar, S. *Role of trade unions vis-a-vis the right to work and the rights of workers.* Kerala. Dr. N.K. Jayakumar.

7. Sunny, K.C. *Corrupt practices in the law of elections.* Kerala. Dr. N.K. Jayakumar.

8. Vijayakumar, V. *Resjudicate and estoppal in public law.* Kerala. Dr. K. Parameswaran.

Public Administration

1. Agarwal, Satish Chander. *Management of fishery resources development in Haryana.* Panjab. Dr. R.K. Sapru.

2. Hardial Singh. *Health delivery system in Panjab : A study.* Panjab. Prof. S.K. Sharma.

3. Sahib Singh. *Cooperative education and training: A study of the Panjab Cooperative Union Ltd.* Panjab. Dr. B.B. Goel.

Education

1. Basi, Sat Pal Kaur. *A study of teaching competency of language teachers in relation to their job satisfaction: Locus of control and professional burn out.* Panjab. Prof. S.S. Mathur and Dr. Asha Gupta.

2. Oliver, Alozie Chindaedum. *A comparative study of the impact of the organizational climate on students and teachers of IMO State of Nigeria in relation to the types of pest-primary institutions.* Panjab. Dr. Harish Sharma.

3. Sood, Kamla. *Comparison of advance organiser and reception strategies for acquisition of language concepts in relation to cognitive style, intelligence and creativity.* Panjab. Dr. G.S. Sodhi.

Business Management

1. Onyedinma, Alozie Iwe. *Effective management style: A study in role perspective.* Panjab. Dr. K.L. Sharma.

HUMANITIES

Philosophy

1. Anuradha. *The problem of religious knowledge.* Panjab. Prof. Dharmendra Goel.

2. Awasthi, Vinita. *Bharatiya astik darshan mein dwait vichardhara.* HS Gour. Prof. Arjun Mishra.

3. Mishra, Shobha Rani. *Astitvavad mein manav swatantrya evam uttardayitva.* HS Gour. Dr. H.N. Mishra.

Religion

1. Ranjit Singh. *Religious traditions of the sikhs.* Panjab. Dr. J.S. Chhabra.

Language & Literature

English

1. Batra, Roshan Kumar. *Female frustration : Comparative study of Federico Garcia Lorca and Tennessee Williams.* Panjab. Dr. C.L. Ahuja and Dr. S.N. Sewak. .

2. Gaur, Arun Kumar. *The study of Jungian Archetypal patterns in Yeats' poetry.* Panjab. Dr. Devinder Mohan.

3. Gupta, Santosh. *A lexico-grammar of the verbs of communication : A comparative study of English, Hindi and Punjabi.* Panjab. Dr. M.L. Raina and Dr. S. Prakashan.

4. Ramanan, Ambasamudram Padmanabhan. *Colonialism and Conrad's fiction.* Panjab. Prof. Nirmal Mukerji.

5. Randev, Prerna. *Quest for identity in Anita Desai's novels.* Panjab. Dr. (Miss) Rama Sharma.

French

1. Ciciliamma, K.A. *Le theatre a Paris De L'entre-Deux guerres.* Panjab. Dr. S. Jathaul.

2. Jagmohan Singh. *La soif de spiritulaite chex Robert Challe.* Panjab. Dr. S. Jathaul.

Sanskrit

1. Baljit Kaur. *Bharatottar natya shastra kee nutan udbhavnaon ka alochnatmak adhyayan.* Panjab. Dr. Anirudh Joshi.

2. Devender Nath. *Shukla Yajush surti vimarsh.* Panjab. Prof. B.L. Bhartiya.

3. Dhanda, Vimal Kumar. *Shankar vedant mein Yogsadhana evam samadhi ke vibhin rupon ka vishleshnatmak adhyayan.* Panjab. Dr. Rama Kant.

4. Dharamvir. *Dayanand Sarasvati ke jivaniparak Sanskrit kavyon ka alochnatmak adhyayan.* Panjab. Prof. B.L. Bhartiya.

5. Karun Lekha. *Critical and comparative study of relationship of sameeya yoga and vedanta.* Panjab. Dr. Rama Kant and Dr. V.P. Upadhyaya.

6. Madhu Bala. *Kamandakiya nitishastra per Kautilya Arthashastra ka prabhava.* Panjab. Dr. Anirudh Joshi.

7. Prasad, P.N. *Mrechakatika: A critical study.* Kerala. Prof. N. Gopala Panicker.

8. Sharma, Hari Kishan. *Varadarajainita vyavabara nirataya ka vidhi shastriya adhyayan.* Panjab. Dr. V.P. Upadhyaya.

9. Sharma, Mahi Dhar. *Bhartiya jyotish mein kala aur dik ka darshanika adhyayana.* Panjab. Dr. Rama Kant.

10. Sharma, Nirmal. *Sayan evam Dayanand krit vedbhashya bhumika ka tulnatmak adhyayan.* Panjab. Prof. B.L. Bhartiya.

11. Sharma, Satish Chander. *Manusmriti aur Yajnavalkyasmriti ka alochanatmak evam tulanatmak adhyayan.* Panjab. Prof. B.L. Bhartiya and Dr. V.P. Upadhyaya.

12. Sharma, Satish Kumar. *A comparative study of Mahabhashya and kashika vriti.* Panjab. Dr. Ghan Shyam Uniyal.

13. Uday Bhan. *Vedadhyayan mein Aryasamaj ka yogdan.* Panjab. Prof. B.L. Bhartiya.

14. Vashisht, Hari Om. *Hemadrikrita Chaturvarga Chintamani aur Nageshabhatta krit Prayashcitt endushekara ke vishesh sandarbh mein Prayashchitton ka alochanatmaka adhyayan*. Panjab. Dr. V.P. Upadhyaya.

15. Ved Pal. *Dayanandia vangmai mein virchit rajnitik chintan*. Panjab. Prof. B.L. Bhartiya.

16. Verma, Parveen Lata. *Machavacharya virchit Bhai Sankara Digvijaya ka kavyashastriya adhyayan*. Panjab. Dr. Anirudh Joshi.

17. Vijayakumari, K.G. *Concept of education according to Bhavabhuti*. Kerala. Dr. K. Achuthan Pillai.

Punjabi

1. Aggarwal, Vijay. *A comparative study of the moral concepts in the Japuji and the Dhammapada*. Panjab. Dr. S.K. Naval and Dr. Darshan Singh.

2. Avtar Singh. *Gurdial Singh de navlan vich naik da sarup*. Panjab. Dr. Kessar Singh Kessar.

3. Baldev Singh. *Bhai Gurdas Dian waran vich manukhi rishtian da vishleshan te vivechan*. Panjab. Prof. Darshan Singh.

4. Daljit Kaur. *Punjabi kissa kavian de kavi-sidhant*. Panjab. Dr. (Mrs.) Jaspal Kang.

5. Dharam Chand. *Punjabi swai jivai sahit: Ek alochanatmak adhyayan*. Panjab. Dr. Raghbir Singh.

6. Kuldip Singh. *Bhai Vir Singh de navalan de nari pattar*. Panjab. Dr. Kartar Singh Suri.

7. Om Parkash. *Puadh dee akhara parampara de sandarbh vich Asa Ram Baidvan dee kavidhara da adhyayan*. Panjab. Dr. Kessar Singh Kessar.

8. Pushpinder Pal Kaur. *Shiv Kumar dee kavita vich vijoge mahav da bimb*. Panjab. Dr. Kessar Singh Kessar.

9. Sant Parkash Singh. *Balwant Gargi ate Kapur Singh Ghuman de natakan de prasang vich Punjabi natak dee rangmanchi sarthakta*. Panjab. Dr. Rabhbir Singh.

10. Sharma, Surjit Chander. *Sadhu Daya Singh Arif da kav jagat*. Panjab. Dr. Atma Singh.

11. Thind, Kewal Singh. *Kapur Singh Ghuman de natakan da alochnatmak adhyayan*. Panjab. Dr. Raghbir Singh.

Hindi

1. Anita Rani. *Swatantrayottar Hindi upanyas mein lok sanskritik chetna ka swaroop*. Panjab. Dr. (Mrs.) Santosh Sharma.

2. Bhatia, Kiran Kanhaiya Lal. *Nai kavita mein adhuniktabodh evam parinamit mulya-sankraman*. Panjab. Prof. M.P. Bhardwaj.

3. Bipan Kumar. *Sataven aur aathaven dashak kee Hindi tatha Punjabi kahani mein vyangya: Ek tulnatmak adhyayan*. Panjab. Dr. Kamal Gupta.

4. Didichi, Renu. *Hindi kahani mein Prem ka swarup, 1950 se 1986 tak*. Panjab. Dr. Yash Gulati.

5. Parvati Bai. *Chandigarh, Panjab, Haryana tatha Himachal Pradesh ke rajyon kee uchhtar madhyamik star kee Hindi pathya pustakon ka manav mulyon ke sandarbh se vishleshanatmak adhyayan*. Panjab. Prof. D.P. Maini.

6. Priyanwada, Manisha. *Madhyavarg ke sandarbh mein samkaleen mahila upanyas lekhan*. Panjab. Dr. Yash Gulati.

7. Sharma, Beena. *Dharmvir Bharti ke kavya ka mithakiya adhar aur uski samkaleen prasangikta*. Panjab. Dr. Laxmi Narain Sharma.

8. Sharma, Suresh Chand. *Mohan Rakesh ke sahitya mein samajik-mulya avdharana*. Panjab. Dr. Jagmohan Chopra.

9. Suman Lata. *Jainendra tatha Ilachandra Joshi ke nari patra: Manovishleshan parak tulna*. Panjab. Dr. Kamal Gupta.

10. Vijay Kumar. *Narhar Dass Varhat krit Krishanavtar ka kavya shastriya adhyayan*. Panjab. Dr. Balraj Sharma.

Urdu

1. Uttam Chand. *Urdu adali kee tarkki mein Himachal Pradesh ka kissa*. Panjab. Dr. Haroon Ayub.

Marathi

1. Bhosale, Tanaji Ramchandra. *Mardekrottar Marathi kavitateel pratima srishti: Visheshta Arti Prabhu va Dileep Chitre yanchya sandarbhti*. Shivaji. Dr. P.B. Tapare.

2. Deshpande, Anant Krishnarao. *Marathiteel Anand Sampardayee kabeeche sahitya : Ek abhyas*. Shivaji. Dr. P.V. Kulkarni.

3. Khanapure, Jagadish Gurubasappa. *G.A. Kulkarni yanche katha sahitya : Ek sarvageen akalan*. Shivaji. Dr. N.J. Phadakule.

Geography

1. Sangram Singh. *The changing demographic landscape of the Hamirpur District of Himachal Pradesh during 1951-81 : A spatiotemporal perspective*. Panjab. Dr. S.S. Chib.

History

1. Bhatia, Kanwal Jit Kaur. *Contribution of sikh women to sikh society*. Panjab. Dr. G.S. Mansukhani and Dr. Darshan Singh.

2. Khan, Jalaluddin Ahmad. *Woman in pre Gupta inscriptions*. Panjab. Dr. K.K. Shah.

3. Sekhon, Harinder. *American historiography and India, 1947-1985*. Panjab. Prof. R.C. Jauhri.

4. Shrivastava, Prabha. *Pandit Kunji Lal Dubey: Personality and achievements*. HS Gour. Prof. B.N. Sharma.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

SOCIAL SCIENCES

Library Science

1. Rajagopalan, N. *Computerised information system for library managers based on operations research techniques*. Karnatak.

Psychology

1. Lata, P.M. *A comparative study of the personality maladjustment and views of women with normal and abnormal labour*. Kerala.

2. Mishra, Pravash Kumar. *Social support and life stress : Mediation processes*. Utkal.

3. Ramachandra, S. *Creativity and mental health.* Bangalore.

4. Shashi Rani. *Psychological disturbances associated with menopause in Indian women: A comparative study of clinical and non-clinical subjects of three menopausal status.* Delhi.

Sociology

1. Chaudhuri, Maitrayee. *Trends in the Indian women's movement : A sociological study.* JNU.

Social Work

1. Ganihar Nazimuddin Amir Hazma. *The alcoholic industrial-workers study in adjustment patterns.* Karnatak.

Political Science

1. Abdul Nafey. *Evolution of institutional revolutionary party and political process in Mexico.* JNU.

2. Arun Kumar. *The convergence of nationalities in the USSR: A case study of Soviet Central Asia,* 1961-82. JNU.

3. Baisa, Sudha. *Bhartiya swatantrata sangram mein Bundelkhand kee desi riyasaton ka yogdan.* Awadhesh.

4. Chakrabarti, Jagatbandhu. *The new panchayats and their leaders: The case of Nadia District.* Calcutta.

5. Jindal, Nirmal. *War as a political weapon in the nuclear age : A study with special reference to the U.S. concept of limited nuclear war.* Delhi.

6. Poudyal, Madhab Prasad. *Administrative reforms in Nepal: A study of administrative capability in a developing country.* Delhi.

7. Vyas, Shobha. *Bhartiya nirvachan paddati ka alochanatmak adhyayan.* Vikram.

Economics

1. Chendroyaperumal, Chendrayan. *Creation and management of economic leverage.* IIT, Kharagpur.

2. Chiranjeevulu, Peddakota. *Tank irrigation and low agricultural performance in Srikakulam District, Andhra Pradesh.* Andhra.

3. Harsh, Panna Lal. *Rajasthan ke marukshetra mein ooni milen: Ek arthik vishleshan.* Rajasthan.

4. Irani, H.S. *Prospects of promoting India's exports to Iran.* Vikram.

5. Parida, Jayantkumar Anirudha. *Human resources, infrastructure and rural development in Orissa.* Baroda.

6. Sharma, Vinod Kumar. *Analysis of financial statements of cycle industry in India.* Rajasthan.

7. Subramanian, M.S. *An econometric analysis of agricultural production in Tamil Nadu.,* 1956-57 to 1980-81. Madurai.

8. Syamrey, Bedprakas. *Problems of tea industry in Darjeeling Hill areas with special reference to its sickness since independence.* North Bengal.

Law

1. Gupta, R.S. *Legal regime of foreign private investment : A South Asian study.* JNU.

Public Administration

1. Goyal, Rajni. *State Civil Service training in India: A case study of the Rajasthan administrative service.* Rajasthan.

Education

1. Bhattacharjee, Dibyendu Sekhar. *A study of educational development in Sikkim.* Baroda.

2. Das Purkayastha, Nibedita. *A study of administrator's behaviour in secondary schools in Bangladesh.* Baroda.

3. Kar, Narendranath. *Value education: A philosophical study.* Baroda.

4. Mohan Rao, C.N.S. *An evaluation of the factors that affect the teacher morale in school setting.* Andhra.

5. Purushothama Rao, T. *Classsroom teaching of effective science teachers: An analytical study.* Baroda.

6. Sabhapathi, Tara. *A study of the relatioonship between manifest anxiety and emotional maturity of 10th standard students in selected schools of Bangalore City.* Bangalore.

7. Sathyanatha Pillai, A. *An experimental study of Gagne's conditions of learning for instruction in physics at secondary level.* Baroda.

Commerce

1. Ajay Narain. *Exchange resource financing by development banks in India.* Delhi.

2. Sen, Ratna. *The development of organisation theory and the search for organisational purpose.* Calcutta.

3. Shukla, Amitabh. *Bharat mein vishwa-bank pariyojnaon ka kriyanvyan tatha prabhav: Madhya Pradesh ke vishesh sandarbh mein.* HS Gour.

4. Umahiya, Krishna Kumar. *Problems of agricultural development with special reference to Sagar Division.* HS Gour.

Home Science

1. Patel, Neeta Chimanbhai. *A study of the drope characteristics of textiles and their influence in clothing styles.* Baroda.

2. Puranik, Warsha. *Scope of improving the tribal nutrition by suitable supplementation of minor millets with common protein sources.* Durgawati.

3. Sharma, Sarita. *Studies on tea seed oil.* Delhi.

Management

1. Adinarayana, S. *Resource use management : Production and returns to sale on paddy form of coastal.* Karnatak.

2. Kathiresan, K. *Causes of industrial disputes in cotton textile industry in Madurai District,* 1974-83. Madurai.

CLASSIFIED ADVERTISEMENTS

KARNATAKA REGIONAL ENGINEERING COLLEGE SURATHKAL (D.K.)

P.O. Srinivasnagar - 574157

KARNATAKA STATE

Dated : 15-4-1987

WANTED

Posts		Pay Scale	Total Salary in the minimum grade.
1. Professor	—3 Posts	Rs. 1500-2500	Rs. 3,474.70
(i) Civil Engg.	—1		
(ii) Chemistry	—1		
(iii) Computer Engg.	—1		
2. Assistant Professor	—7 Posts	Rs. 1200-1900	Rs. 3,014.60
(i) Geology under the Civil Engg. Dept.	—1		
(ii) Mechanical Engineering	—1		
(iii) Mining Engineering	—2		
(iv) Chemistry	—1		
(v) Computer Engineering	—2		
3. Lecturer	—6 Posts	Rs. 700-1600	Rs. 1,924.20
(i) Electronics & Communication Engg.	—1		
(ii) Mechanical Engineering	—1		
(iii) Physics	—1		
(iv) Computer Engg.	—3		

Apply in the prescribed form on or before **8-6-1987**. The prescribed form along with details of qualification and instructions can be had from the college office by sending a crossed Indian Postal Order worth Rs. 2/- in favour of the Principal, K.R.E. College, payable at Srinivasnagar P.O. along with a self addressed, envelope of size 25 x 10 cm affixed with postage stamp of Rs. 1.80. Application received on plain paper and after the stipulated date will not be considered.

T. Ramchandran
PRINCIPAL

THE UNIVERSITY OF JODHPUR

(Establishment Section)

No. JDR/U/Estt./3725

Dated ; April 13, 1987

Advertisement No. 7/87-88

APPOINTMENTS

Applications are invited on the prescribed form for the following posts so as to reach the office of the undersigned latest by **1st June, 1987**. The application form can be obtained from this office on payment of Rs. 10/- (ten) only through Indian Postal Orders payable to the Registrar, University of Jodhpur, at Jodhpur alongwith a self-addressed envelope of 24 x 11 cms. size bearing postal stamps Rs. 5.90 n.p. Application fee for SC/ST candidates will be Rs. 2.50/-.

1. **Professors**

Rs. 1500-60-1800-100-2000-125/2-2500.

(a) Hindi (1), History (1), Geography (1), Philosophy (1).

(b) Commerce (1) (U.G.C. Plan)—Specialisation in Accountancy/Banking and Co-operative.

2. **Associate Professors (Readers)**

Rs. 1200-50-1300-60-1900.

(a) English (1), Hindi (1), Philosophy (1), Political Science (1), Botany (1), Zoology (1), Mathematics (2), Mechanical Engineering (1).

(b) (i) Psychology (1), (U.G.C. Plan), (ii) Electronics & Communication Engineering (1), (U.G.C. Plan).

3. **Assistant Professors (Lecturers)**

Rs. 700-40-1100-50-1600.

(a) French (1), Hindi (2), History (2), Rajasthani (1), Geology (2), Civil Engineering (2), Structural Engineering (1).

(i) Music (1), (U.G.C. Plan—Vocal Music).

(ii) Electronics & Communication Engineering (2), (U.G.C. Plan).

(iii) Physics (Electronics) (1) (U.G.C. Plan).

4. **Superintendent of Physical Education :** (One).

Rs. 700-40-1100-50-1300.

5. **Assistant Librarian (Professional Junior)** (One).

Rs. 700-40-1100-50-1300.

Note: 1. Details of qualifications will be made available to candidates alongwith application form.

2. Dearness Allowance, House Rent Allowance, City Compensatory Allowance, etc. and PF will be payable as per University rules.

3. The University reserves the right to increase or decrease the number of posts. The University also reserves the right not to fill the posts, if deemed necessary.

4. No application form in any case will be accepted after the last date mentioned above. Any applications received after prescribed date will not be considered at all.

5. Candidate should affix passport size photo (latest) on the application form.

6. The University may call for interview only limited number of candidates. No TA & DA will be paid to candidates called for interview.

7. 16% and 12% posts are reserved for SC and ST candidates respectively. If no suitable SC/ST candidate are available, these posts will be considered as general.

H.K.L. Khattar
REGISTRAR

CENTRAL MINING RESEARCH STATION, DHANBAD

(Council of Scientific & Industrial Research)

Advertisement No. 1/87

JOB OPPORTUNITY

Central Mining Research Station, a reputed National Laboratory engaged in the service of Mining and allied Industries, has developed excellent R & D facilities and expertise in the areas of mining technology, mine engineering, safety and Health of Mine Workers. CMRS is planning for rapid expansion to meet the R & D needs of mining industry. The Institute provides good facilities for young Scientists to work for the award of Post-Graduate degree, M. Tech./Ph.D. The career opportunities are excellent as each qualified Scientist can aspire to get time bound promotion by assessment upto the scale of Deputy Director and recognition as a specialist. In adition, there is scope to earn upto a maximum of Rs. 15,000/- per annum in consultancy.

Applications are invited from candidates having aptitude in research for the following posts:

Group No. 1

(1) **Scientist 'EI'** (Scale of pay Rs. 3700-125-4700-150-5000) (Minimum emolument at initial stage Rs. 4400/- approx.)

No. of Post : One.

Qualification Essential : First class degree in Mining/Civil Engineering with 12 years experience or M.E./M. Tech. with 10 years experience as evidenced by publications. In case of candidate with Rock Mechanics background and having high academic qualification, experience may be relaxed.

Desirable : Knowledge of Computer application preferred.

Job Requirement : The selected candidate will be required to carry out R & D work pertaining to Rock Mechanics and method of working in non-coal mines.

Group No. II

(2) **Scientist 'C'** (Scale of pay Rs. 3000-100-3500-125-4500) (Minimum emolument at initial stage Rs. 3560 approx.)

No. of Post : 4 (Four).

Post No. I (One)

Qualification Essential : First class B.E. (Mining).

Experience : 3 years experience in coal mines on thick seam working.

Desirable : M.E./M. Tech. in Mining Engineering with 2 years experience in thick seam working preferred.

Job Requirement : To work on R & D problems of thick seam working.

Post No. 2 & 3

Qualification Essential : First class B.E. (Mining Machinery/Mechanical) with 6 years experience.

Desirable : M. Tech. with 4 years experience in design of Mining equipment or Ph.D. (Engineering).

Job Requirement : To work on improving the design of mining equipment and supports.

Post No. 4 (Four)

Qualification Essential : First class M.Sc./First class B.E. with 6 years experience/M.E. with 4 years experience/ Ph.D. (Science) with 2 years experience of computer application and mathematical modelling of engineering problems.

Desirable : Experience of working with main frame computer using "on line terminal" preferred.

Job Requirement : To head computer section to provide Central Computer facility.

Group No. III

(3) **Scientist 'B'** : (Scale of pay Rs. 2200-75-2800-EB-100-4000) (Minimum emolument at initial stage Rs. 2616 approx.)

No. of Post : 17 (Seventeen).

Post No. 1 to 7

Qualification Essential : First class B.E./ B. Tech. in Mining.

Experience : Preferable as per job description/requirement.

Job Requirement for Post No. 1, 2 & 3: To work on ground control problems in Mines/Tunnels etc.

Job Requirement for Post No. 4 : To undertake R & D work in cuttability of coal and other strata control studies.

Job Requirement for Post No. 5 & 6 : To carry out work on ventilation planning and design in mines to solve the ventilation problems for safety and efficiency. Candidates with knowledge of modern equipments, methods and technology of the system of ventilation will be preferred.

Job Requirement for Post No. 7 : To investigate and develop methodology of testing explosives and accessories and to provide R & D support.

Post No. 8

Qualification Essential : B.E. (Mining Machinery or Mechanical Engineering).

Job Requirement : To carry out R & D work on drilling/Jet cutting of coal or rock with advanced techniques and technology.

Post No. 9 : (Reserved for SC candidate).

Qualification Essential : First class M.Sc. (Applied Math./ Statistics/Applied Physics) or First class B.E. in Computer Science.

Experience Desirable : Over 2 years research experience with good knowledge of numerical tecniques, computer programming using Fortrain Basic & Cobal language to solve mathematical problem with different techniques and to develop computer programming or software for office automation.

Job Requirement : To extend computer facilities for organisational problems and scientific analysis.

Post No. 10

Qualification Essential : First class M.Sc./Ph.D. in Math./Applied Math. having over 2 years experience preferably in methods of numerical analysis and good knowledge of computer programming.

Job Requirement : To undertake investigations in the field of rock blasting/ drilling/strata control in mines etc.

Post No. 11 : (Reserved for S/C candidate).

Qualification Essential : First class Master's degree in Library and Information Science or Associateship in Information Science from INSDOC/DRTC or M.Sc. (Physics or Mathematics) or B.E. with experience in programming in FORTRAIN, COBAL or DBMS, or First class B.E. in Computer Science.

Desirable : Experience in the usage of FORTRAIN/COBAL or DBMS or any appropriate software package in computer based library and Information retrieval systems and/or design and management of such systems.

Job Requirement : To design and develop a computer-based Library and Information retrieval system, bibliographic and numeric data bases, SDI services, and perform any other duties assigned to him from time to time.

Post No. 12 : (Reserved for S/T candidates).

Qualification Essential : First class B.E./B. Tech. or M.E./M. Tech. in Civil/Mining Engineering having experience in Geotechnical field and ground monitoring.

Job Requirement : To provide competent technical/scientific assistance in the execution of research projects in the Laboratory/field pertaining to stability of slope in open cast mines.

Post No. 13

Qualification Essential : First class B.E. (Civil/Mining/Geology.)

Desirable : Knowledge of Rock Mechanics problems pertaining to tunnels/mines, strata behaviour in tunnels or in mines preferred.

Job Requirement : To carry out work on ground control problems in Mines/Tunnels etc.

Post No. 14

Qualification Essential : First class M.Sc. (Geology/Applied Geology with knowledge of rock mechanics).

Desirable : 2 years experience in teaching/research/industry on rock mechanics problems.

Job Requirement : To work in the Geo-Mechanics aspect of mining.

Post No. 15 : (Reserved for S/C candidate)

Qualification Essential : First class M.Sc. (Radiology) or first class M.Sc. with Diploma in Radiology or M.B.B.S. or D.M.R. in Industrial disease. Experience in studying X-ray plates of Miner's occupational diseases.

Job Requirement : To conduct radiological study for finding incidence and progression of pneumoconosis and other occupational disease. Maintenance of X-ray machine and other apparatus of radiological laboratory.

Post No. 16

Qualification Essential : Firxt class graduate (Mining/Mechanical/Mining Machinery).

Job Requirement : To work on design and development aspects/methodology of surface/underground transport systems in mines. Candidate with M.E. or knowledge of computer application preferred.

Post No. 17

Qualification Essential : First class B.E. (Mining).

Desirable : Specialisation in opencast mining.

Job Requirement : To provide competent technical/scientific assistance in the execution of research projects in the Laboratory/field pertaining to problems in opencast mines.

N.B.: (a) Candidates appearing in final years examination may also apply for Scientist 'B' post but their candidature will be considered only after presentation of result.

(b) Candidates are required to attach a brief synopsis of the experience/field of specialisation/working in about 200 words in case of all category of posts.

General Conditions

1. All the above posts carry usual allowances as admissible to the central Government employees of the same pay and status stationed at Dhanbad. Higher initial start may be considered for deserving candidates. Total emoluments at the minimum of the grades at present are as follows:-

On Rs. 3700	Rs. 4400/-
On Rs. 3000	Rs. 3560/-
On Rs. 2200	Rs. 2616/-

2. Appointment in the scale of Rs. 2200-4000 and above will be on contract for a period of six years (including the period of probation of two years) in the first instance except for CSIR employees already confirmed against lower posts. The posts are pensionable subject to the CSIR rules and regulations in force.

3. They may be assigned any other job and their services may be transferred to any part of India for working in the field or in the Laboratories of CMRS at the field station to be established in different parts of India.

4. Candidates with Engineering qualifications, if so required, are liable to serve in any defence service or post connected with defence of India for a period of not less than 4 years, including period spent on training, if any, provided that such a person(s) (a) shall not be required to serve on the above post after expiry of 10 years from the date of appointment, and (b) shall not be ordinarily required to serve as aforesaid after attaining the age of 45 years.

5. A lower standard of suitability in consistent with efficiency will be applied in respect of Scheduled Caste/ Scheduled Tribes candidates—Candidates belonging to these communities should invariably enclose an attested copy of the original caste certificate issued by a competent authority with their application failing which they will not be entitled to the concessions otherwise admissible to them.

6. Since it is not possible to call all the candidates for interview the applications will be shortlisted for the purpose and the decision of a duly constituted screening committee of the Institute will be final in this regard.

7. Applicants called for interview will be paid single second class rail fare to and fro from the actual place of undertaking the journey or from the normal place of residence whichever is nearer to Dhanbad Railway Station, on production of relevant documents of travel.

8. The prescribed application forms for the above posts may be obtained from the Administrative Officer, Central Mining Research Station, Dhanbad (Bihar) by sending a requisition along with a Self-Addressed envelope (23 x 10 cm) STAMPED (Worth Re. 1.00) on or before **18-5-87**. Applications duly completed (supported by attested copies of Certificates and testimonials) along with a non-refundable fee of Rs. 8.00 **(no application fee is prescribed-for SC/ST candidates)** in the form of crossed Indian Postal Order drawn in favour of the Director—Central, Mining Research Station, Dhanbad, must reach on or before **1-6-87**. (for overseas candidate 16-6-87).

9. Separate application accompanying with separate postal orders should be submitted for each post. **Candidate should specifically mention the category**

of post and post No., against which he is submitting the application.

Number of Advertisement, Name of post applied for and full address in block letters are to be indicated at the top of the requisition for obtaining the application forms.

10. Applying for any position advertised herein does not entitle an applicant to be called for interview, which will be governed by the prevailing rules and regulations.

11. Applications from employees working in Government Deptt. Public Sector, Undertaking and Government funded Research Agencies will be considered only if forwarded through proper channel and with a clear certificate that the applicant will be relieved within one month of receipt of the appointment order.

12. Applications received after last date viz: **1-6-87** (16-6-87 for overseas candidates) and/or incomplete applications are liable to be summarily rejected. Canvassing in any form and/or bringing in any influence political or otherwise, will be treated as disqualification for the post.

INTERIM ENQUIRIES WILL NOT BE ENTERTAINED

GURU GHASIDAS UNIVERSITY

Rishi Kutir, Civil Lines,

BILASPUR, MP.

No. 2317/Estt./87 Dated : 10-4-1987

Applications on the plain paper are invited for the post of Director, Physical Education. The post will carry a scale of pay of Rs. 1860-60-2100-75-2400 plus allowances admissible under the rules. The application should contain the information about name, age, place and date of birth, community SC/ST/BC/OC, present occupation, address for communication, qualification, experience any other information, reference of two etc.

Qualification and Experience

1. A Master's degree in physical education (High 2nd class with diploma in sports coaching from a recognised institution).

OR

A Master's degree in Physical Education (High 2nd class, with a record of having represented his University at the Inter-University level/State in the National Championship).

2. Experience of atleast five years in organising games and sports (as exemplified in handling of about half a dozen teams in a year in his institutions and their participation in University/Inter-collegiate tournaments, and ability to encourage mass participation in games and sports).

Application alongwith postal order or Bank Draft of Rs. 10/- in favour of Registrar, Guru Ghasidas University, Bilaspur, MP should be sent to the undersigned on or before **Monday, the 4th May, 1987.**

No TA/DA will be admissible to the candidates if called for interview.

R.C. Parmar

REGISTRAR

BANASTHALI VIDYAPITH

Member : Association of Indian Universities, Association of Commonwealth Universities.

The Vidyapith invites applications for the following positions:

1. Librarian

Qualifications

(a) First or Second Class M.Lib. Sc. OR M.A./M.Sc./M. Com. plus a First or Second Class B. Lib. Sc. or Diploma in Lib.Sc.

(b) At least 10 years experience as Librarian OR in a responsible professional capacity in a University Library.

(c) Ph.D. Degree or equivalent research work in the field relevant to the profession.

(d) Training in Computerization/information technology would be considered desirable.

2. Deputy Librarian

Qualifications

As above except experience which should be at least — 7 years.

Pay Scales

Librarian : 1500-60-1800-100-2000-125-2500 (U.G.C. Scale likely to be revised).

Deputy Librarian : 1200-50-1300-60-1900 (U.G.C. Scale likely to be revised).

Dearness Allowance, Provident Fund, Gratuity-cum-Insurance, Group Insurance benefits as per Vidyapith rules.

Notes: (1) Workers must become habitual wearer of Khadi on appointment.

(2) Vidyapith reserves the right not to fill any post advertised or to increase or decrease the number of vacancies.

(3) Selection Committee may recommend higher start in exceptional cases on merit.

(4) First Class return railway fare for Librarian and Second Class for Deputy Librarian will be paid to persons appearing for interview.

Application on prescribed forms in seven copies must reach Secretary, Banasthali Vidyapith, P.O. BANASTHALI VIDYAPITH (Rajasthan)—304022 by **25th MAY, 1987.** Forms can be obtained by sending Postal Order/Bank Draft of Rs. 10/- payable to Secretary, Banasthali Vidyapith.

NATIONAL INSTITUTE OF HYDROLOGY

Jal Vigyan Bhawan

ROORKEE

No. 22/1/87-NIH (Admn.) Dated: 16-4-1987

CORRIGENDUM

The last date for the receipt of applications for the following posts in the National Institute of Hydrology, Roorkee which were advertised vide Advt. No. 1/87-NIH dated 22-1-87 has been extended upto **18th May, 1987.**

1. Scientist 'F'
2. Scientist 'E'
3. Scientist 'C'

Those who have already applied in response to the earlier advertisement, need not apply again.

DOCTOR HARISINGH GOUR VISHWAVIDYALAYA

SAGAR (M P.)

Advertisement No. R. 1 of 1987

Applications are invited on the prescribed form for the following posts:-

Professors : Pay Scale : Rs. 1500-60-1800-100-2000-125/2-2500.

Physics : 1 (Electronics), **Zoology : 1, Criminology and Forensic Science : 1, Ancient Indian History Culture and Archaeology :** 1, (Tagore Chair) **English : 1, Political Science and Public Administration : 1, Psychology :** 1, (Experimental Psychology), **Philosophy :** 2, (One in Philosophy of Science/Modern Philosophy), **Law :** 1 (Temp.), **Electronics :** 1 (Micro-Processor/Microwave Electronics).

Readers : Pay Scale : Rs. 1200-50-1300-60-1900.

Chemistry: 2 (One in Organic Chemistry), **Zoology : 1, Criminology and Forensic Science : 1, Applied Geology : 1, Centre of Advanced Study in Geology : 1, Anthropology : 1, Geography : 1, Pharmaceutical Sciences : 3** (One in Pharmaceutical Chemistry, One in Pharmacology and One in Pharmaceutics/Pharmacognosy), **Sanskrit : 1, Economics : 1, English : 1, Political Science and Public Administration : 1, Urdu : 1, Statistics : 1, Electronics :** 1 (Vacuum Technology).

Lecturers : Pay Scale : Rs. 700-40-1100-50-1600.

Physics : 1, **Maths** : 3, **Criminology and Forensic Science** : 2, **Sociology** : 1, **Pharmaceutical Sciences** : 2 (One Temp.), **Sanskrit** : 1, **Economics** : 2, **English** : 3, **Political Science & Public Administration: 1, Philosophy : 1, Urdu : 1, Commerce :** 4, **Youth Welfare & Cultural Activities :** 1 (Performing Arts), **Statistics :** 3, **Electronics :** 2 (One in Digital Electronics and One in Instrumentation).

Research Associate : Applied Geology : 2 (Pay Scale : Rs. 700-40-1100-50-1600).

Senior Technical Assistant : Electronics : 1 (Pay Scale : Rs. 550-25-750-EB-30-900 UGC).

Junior Technical Assistant : Electronics : 1 (Pay Scale: Rs. 425-15-500-EB-15-500-20-EB-25-750 UGC).

Instructor : Pharmacy : 1 (Pay Scale : Rs. 200-15-290 UGC).

Senior Sports Officer : 1 (Pay Scale : Rs. 700-40-1100 UGC).

Department of Adult and Continuing Education :

Director : 1 (Pay Scale : Rs. 1500-60-1800-100-2000-125/2-2500 UGC).

Assistant Director : 1 (Pay Scale : Rs. 1200-50-1300-60-1900 UGC).

Project Officer : 1 (Population Education) (**Pay Scale :** Rs. 700-40-1100-50-1600 UGC).

University College of Education

Lecturer : 2 (Pay Scale : Rs. 1000-30-1180-30-1210-40-1450-EB-50-1800-60-1920 Choudhary Pay Scale).

Craft Instructor : 1 (Pay Scale : Rs. 740-15-800-20 -900 - 25-1000 - 30-1180-30-1210-40-1250 Choudhary Pay Scale).

Note: In the Department of Criminology and Forensic Science, considering the requirements of the Department preference may be given for one of the posts of Professor/Reader/Lecturer to a Candidate having qualifications in Physics (with specialisation in Instrumentation/Spectroscopy/X-ray and if possible ballistics also) and for one to a candidate having qualifications in Psychology (with specialisation in Clinical/Abnormal Psychology).

In the Department of Economics looking to the requirements of the Department for the post of Reader preference may be given to Specialisation in 'Labour Economics' and for the posts of Lecturers to Specialisation in 'Quantitative Techniques' for one post and that in 'Banking' or 'Cooperation' for the other.

All posts carry dearness allowances, other allowances and Retirement benefits as per the University rules. Prescribed application forms together with details of qualifications may be obtained from the Registrar by making a written request accompanied by a Postal Order of Rs. 10/- (Rs. 5/- in case of SC/ST Candidates) payable to the Registrar, Dr. Harisingh Gour Vishwavidyalaya, Sagar-470003 (M.P.) and two self addressed envelopes (5" × 11") bearing postage stamps worth Rs. 2/- each. Preference will be given to SC/ST Candidates, if found suitable. Applications duly filled and accompanied by certified true copies of Marksheets, Certificates and testimonials should reach the Registrar on or before **Monday, the 1st June, 1987.** One envelope should be used foı one post only.

R.N. Dhawan
REGISTRAR

PANJAB UNIVERSITY (CHANDIGARH)

ADVERTISEMENT No. 1/87

Applications are invited for the following posts so as to reach the Registrar, Panjab University, Chandigarh, alon7.gwith postal order of Rs. 10/- by **14-5-1987.** Fourteen days extra time is permissible to the persons who have to submit their applications from abroad:

1. **Professor** : (Rs. 1500-60-1800-100-2000-125/2-2500).

Music - 1

Essential Qualifications

(a) A good academic record with at least 2nd class Master's degree in the relevant subject with sound knowledge of theory.

(b) Outstanding reputation as a Performer.

(c) Ability to teach Post-graduate classes and guide research. Provided that the condition of Master's degree may be relaxed in the case of candidates with outstanding reputation as a Performer or outstanding reputation as a Performer or outstanding record of teaching or research.

Desirable Qualifications

(a) Published work of distinction.

(b) Teaching experience of ten years.

(c) Evidence of having received sound and systematic training from a well-known Ustad/Guru for a number of years or having received a higher degree/diploma in classical Music from a recognised University/Music Institution.

2. **Reader** : (Rs. 1200-50-1300-60-1900).

Music - 1.

Essential Qualifications

(a) A good academic record with at least 2nd class Master's degree in the relevant subject with sound knowledge of theory.

(b) Reputation as a Performer.

(c) Ability to teach Post-graduate classes and guide research.

Note: In case of those with outstanding reputation as a Performer and/or evidence of teaching and research of distinction, the condition of Master's degree may be relaxed.

Desirable Qualifications

(a) Published research work.

(b) Teaching experience of five years.

(c) Evidence of having received sound and Systematic training from a well-known Ustad/Guru for a number of years or having received a higher degree/diploma in Classical Music from a recognised University/Music Institution.

Note:
1. The Vice-Chancellor could place before the Selection Committee, names of suitable persons for its consideration alongwith the applications received in response to the advertisement.
2. It is not obligatory on the part of the University to call for interview every candidate who possesses the essential qualifications.
3. The number of vacancies may change.

Persons already in service must route their applications through proper channel. They may, however, send one copy of their application on the prescribed proforma direct to the University. They will be allowed to present theselves for interview only on the production of a "No Objection Certificate" from their employers. **Incomplete forms will not be considered. Forms received after the due date are liable to be rejected unless the Vice-Chancellor condones the delay by a special order.** Attested copies of Certificates in support of qualifications for Matriculation/School Leaving, graduation, post-graduate examinations be attached to the application. Canvassing in any form will disqualify the candidate.

Application forms can be obtained from the Cashier, Panjab University, Chandigarh personally on payment of Rs. 2/- or by making written request to the Deputy Registrar (Estt.) Panjab University, Chandigarh, accompanied by self-addressed (stamped worth Rs. 1.50) envelope of 23 x 10 cms. and postal order of Rs. 2/- drawn in favour of the Registrar, Panjab University, Chandigarh.

KUMAUN UNIVERSITY, NAINITAL

Advertisement No. 56 **Dated : 10-4-1987**

Applications for the following posts are invited by **25 May, 1987** on prescribed form obtainable from the Office of the Registrar Kumaun University, Nainital 263001 (U.P.) by sending a self addressed 9'' x 4'' envelope and crossed postal order/Bank draft for Rs. 7/- payable to the Finance Officer, Kumaun University, Nainital. Money orders are not acceptable. Candidates who have already applied in response to the Advertisement No. 1736 Dated 27-2-86 for the post of lecturer Pol. Science Lv, and Advertisement No. 1335 Dated 12-11-86 for the post of lecturer Music (Tabla) need not apply again. They may, however, send the latest addition to their qualifications changes of address etc. if any.

Sl. No.	Name of Post	No. of Post	Scale of Pay	Specialisation, if any
1.	Professor Geology	1R	1500-2500	—
2.	Lecturer Pol. Science	1R 1Lv	700-1600	—
3.	Lecturer Mathematics	1TlR	700-1600	—
4.	Lecturer Music (Tabla)	1R	700-1600	Tabla
5.	Lecturer English	1Lv	700-1600	—
6.	Lecturer Chemistry	1TlR	700-1600	Organic Chemistry
7.	Lecturer Statistics	2TlR	700-1600	—

Note: R—implies regular, TlR—implies temporary likely to be regular, Lv—implies leave vacancy.

Qualifications

1. **For the Post of Professor Geology**

Either—Eminent scholarship with published work of high quality and active engagement in research and ten years experience of teaching or Research and experience of guiding research at doctorate level;

OR

Outstanding scholarship with established reputation for significant contribution of knowledge.

2. **For the Post of Lecturer Pol. Science, English, Mathematics, Chemistry, Statistics**

(a) a doctorate degree or research work of an equally high standard in relevant subject, and

(b) consistently good academic record with first or high second class master's degree or an equivalent degree of a foreign University in relevant subject.

3. **For the Post of Lecturer Music (Tabla)**

Either (a) Consistently good academic record with first or high second class master's degree or an equivalent degree or diploma recognised by the University; and

(b) Two years research or professional experience or creative work and achievement in his field of specialisation or a combined research and professional experience of three years in the field as an artist of outstanding talent;

OR

A traditional or professional artist with highly commendable professionable achievement in the subject concerned.

Further details regarding qualifications, service terms and permissible relaxations in qualifications will be provided with application form. Preference will be given to SC/ST candidates if otherwise considered suitable by the selection committee. Application form will not be sent by post after 20 May, 1987. Application on plain papers and received after due date are not acceptable.

REGISTRAR

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House,
16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429.
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

University News

MONDAY, MAY 4, 1987 **Rs. 1.50**

ARY & DOCUMENTAT
UNIT
19 MAY 1987
C E T R I SORE

G. RAM REDDY
JAGDISH NARAIN

Prof. Yash Pal, Chairman, UGC, Prof. G. Ram Reddy, President, AIU and Dr. Jagdish Narain, Secretary, AIU at the Group Discussion on Modernising University Administration organised by AIU on 30 April–1 May, 1987.

Netaji Subhas National Institute of Sports

PATIALA - 147 001

BECOME A QUALIFIED COACH

NIS offers the expertise for an exciting career in professional coaching. Excellent job opportunities. Courses begin 1 July 1987 as follows :

MASTER'S COURSE

Only at the NIS, Patiala, in Athletics, Basketball, Football, Gymnastics, Hockey, Volleyball and Wrestling.

ESSENTIAL QUALIFICATIONS

Graduate, NIS Diploma (I/II class); Five-year coaching experience.

AGE

Below 45 years.

REGULAR DIPLOMA COURSE

(a) at the NIS, Patiala, in Athletics, Badminton, Basketball, Boxing, Cycling, Football, Gymnastics, Handball, Hockey, Judo, Swimming, Table-Tennis, Volleyball, Weightlifting and Wrestling.

(b) at the NIS, South Centre, Bangalore, in Athletics, Hockey, Handball, Kho-Kho/ Kabaddi, Lawn-Tennis, Volleyball and Cricket.

(c) at the NIS Eastern Centre, Calcutta, in Athletics, Archery, Basketball, Football, Gymnastics, Volleyball and Swimming.

ESSENTIAL QUALIFICATIONS

Degree from any recognised university with proficiency in Sports.

OR

Matriculates having represented the country in recognised international sports event or outstanding performance in Senior Nationals.

OR

Matriculate with participation in Senior Nationals/Inter-Services for at least three years.

AGE

Between 23 and 35 years for male and 21 and 35 for female candidates.

* Free tuition and lodging for all students.
* Subsidised boarding at Rs. 200/- per month.
* Ex-internationals of approved categories are entitled to free board.
* Free boarding facilities available to Scheduled Castes/Scheduled Tribes.
* Special scholarships for women with M.P. Ed.
* Free boarding facilities to women trainees.
* Special facility of free boarding and up and down travel expenses to unemployed trainees from North East-Region.

For prescribed application form and prospectus, apply to the Director General, NIS, Moti Bagh, Patiala, or the Director, NIS, South Centre, Near Bangalore University Campus, Bangalore, or the Director, NIS East Centre, Sector-III, Salt Lake City, Calcutta, alongwith a crossed Postal Order for Rs. 10 - in the name of "Society for the National Institutes of Physical Education and Sports."

LAST DATE FOR APPLICATION IS 1ST JUNE, 1987.

19 MAY 1987
C. F. T. R. I. MYS

UNIVERSITY NEWS

VOL. XXV No. 18 Price
MAY 4 1987 Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor:
SUTINDER SINGH

Universities and Extension

The credit for the Green Revolution in India is due, in a large measure, to the extension and research work done by the Agricultural Universities of India. Modelled on the Land Grant Colleges of USA, these universities accepted extension work, besides teaching and research, as one of their primary responsibilities. They chose to serve as the delivery system of agricultural know-and-do-how from the research station to the farm and also as problem-shooters by encouraging farmers bring their problems to the scientists. Besides training village and block level workers, the *modus operandi* was to hold farmers' fairs, organize demonstration farms, replicating improved agricultural practices, introducing high-yielding seeds, better instruments and tools of production and to initiate socio-economic studies to identify areas of action. As a result, the Indian farmer, dubbed as the most primitive by Anglo-American teachers in Indian universities in the 30's, rose to accept the challenge of population pressure on the land and increased the production of foodgrains from 50 m. tonnes to 150 m. tonnes in less than 2 decades. A marvellous feat, indeed, which has won him accolades of agricultural scientists the world over.

Dr. Madhuri Shah, as Chairperson of the UGC, sought to introduce the dimension of extension in the orthodox university system, while trying at the same time to improve the standard of teaching and research programmes. She laid great emphasis on problem-solving research, relevant to the needs of the times, both in humanities and science disciplines. Simultaneously, she introduced a massive programme of action to erase the shame of illiteracy and wipe out mass ignorance. A network of Adult Education Departments in the University System, with assured financial assistance until 1990, was sought to be set up.

But judging from the problems posed and the progress reports presented at a Round Table recently called by the Indian Adult Education Association, it would appear that the speed is going to be tardy, unless the universities accept whole-heartedly the responsibility for extension education. The infra-structure sought to be set up by the UGC shall remain soul-less unless the university dons come to operate the programme with a missionary zeal, even as their fellow-travellers did in the agricultural universities. They rubbed shoulders with innovative, progressive and adventurous farmers. They also fully utilized the infra-structure of gram sewaks and field-level extension workers developed by the Community Development Administration. They were thus able to remove the shadow of hunger from the land.

It is exactly in the same spirit that the university teachers shall have to accept responsibility if we have to wipe out the shame of illiteracy and the curse of ignorance from crores of unfortunate hamlets and slums infesting this fair land.

The universities shall have to break their walls and act as Light Houses of knowledge, spreading light all around in their vicinity. A practical agenda for action for universities and colleges could be to do intensive and thorough work in the District/Block in which they are situated within a reasonable time-frame. Each family in such a specified area should become the responsibility of the university/college and performance in this regard should count towards its entitlement for further financial assistance. The UGC would do well to set up a monitoring unit to watch periodical progress. Target: Zero illiteracy, zero unemployment and dissolution of ignorance.

Tamaso ma jyotirgamay (Lead me from Darkness to Light).

—*G.B.K. Hooja*

Management of Examination Record

N. L. Mishra*

Documentation of procedure, action, follow up of decisions and other allied steps taken in connection with the disposal of cases may be defined as record. The nature of record may vary from office to office depending upon the nature of work being done by them. Thus in the office of a university where teaching and examinations are the two main assignments, the record may mainly relate to either establishment or the examiniation. The record of examination is a peculiar type of record where not the files but record of registration and achievements of the students, in each examination, form the major part of the record. For purposes of better understanding the whole record of examinations may be divided into three broad categories :

(a) Record of permanent nature
(b) Record of semi-permanent nature
(c) Record of temporary nature

Each type of record may be enumerated as under:

Record of Permanent Nature

Record related to registration and achievements of the students is such that it has to be preserved permanently; time factor does not matter for such record. In examination system there are many things with which the factor of sanctity is deeply attached. Special attention is required to be paid to maintenance and preservation of such record. The following record may be included in this category :

(i) Enrolment/registration ledgers
(ii) Tabulation registers
(iii) Compilation registers
(iv) Books of marks-sheet blanks
(v) Undistributed written degree/certificates/gold medals.
(vi) Merit lists/Gold medal lists
(vii) Policy files containing relevant decisions of Syndicate/Executive Council, Senate, Academic Council and administrative orders issued for implementation of these decisions
(viii) Files having correspondence/lists regarding equivalence of examinations.

Record of Semi-Permanent Nature

There are certain records which are important, valuable and considered as basic records but these need to be preserved upto a certain time limit i.e. the current academic year. Soon after the current academic year is over and cycle of next examination starts, such records come to secondary position as far as factor of importance is concerned. The frequency of references/consultations to such records become less and less every subsequent year and after some period (duration may differ from item to item) these become almost obsolete. That is why such record can be categorised as 'record of semi permanent nature'; important items of these may be as under:

(i) Examination application forms filled in/submitted by the examinees
(ii) Enrolment/Eligibility forms filled in/submitted by the students
(iii) Assessed answer-books
(iv) Award sheets
(v) Scholarship forms
(vi) Research files maintained for registration of Ph.D. candidates
(vii) Blank examination application forms (priced forms)
(viii) Panels of examiners
(ix) Important circulars/notifications
(x) General record:

  (a) Record related to creation of examination centres;
  (b) Instructions to the centre superintendents and correspondence with them;
  (c) Academic calendar;
  (d) Record related to procurement of paper for manufacturing of answer-books;
  (e) Accounts of blank answer-books;
  (f) Files containing administrative and financial sanctions for various examination works;
  (g) File for printing of question papers;
  (h) Record related to contract given to computer firm, if any;
  (i) Record related to procurement of various/miscellaneous stationery items with proper accounting and storing;

**Deputy Director (Admn.), H.C.M. Rajasthan State Institute of Public Administration, Jaipur*-302 004.

(j) Files containing papers of legal cases (case wise);

(k) Record related to cash windows such as counter-foils, cash memos, record of incoming postal orders, demand drafts, etc. (From individuals as well as from affiliated colleges);

(l) Files related to individual problems which involve discretionary administrative decisions.

Record of Temporary Nature

All other records which are related to the interim arrangements or business correspondence with the principals, centre supdts., and non-collegiate candidates which is of only temporary value can be put in the category of temporary record. The following items may be included in this type :

(i) Amendments in rules till the same are not approved by the appropriate bodies and incorporated in the handbook
(ii) Day-to-day orders obtained in the cases of refund of excess amount, discrepancy noticed in checking of examination forms etc., query letters, declaration of 'RL' and 'RW' cases, and other things of rontine nature
(iii) File-Correspondence with Centre Supdts
(iv) File-Correspondence with the students
(v) File-Correspondence with paper setters and examiners (if number is more, these files may be prepared faculty or subject-wise)
(vi) Any other paper of routine nature

Maintenance of Record

Depending upon the nature and reasonable duration for preservation, the record related to various activities of examination process requires specific attention. Thus the record of first category which is of permanent nature has to be maintained in such a way that it may last for maximum possible period. Safety is the first consideration for such record. The main consideration for record of second category i.e. the record of semi-permanent nature is a regular and timely weeding out. Such record must be kept safe for the required duration and as soon as it loses its relevance, it should be weeded out without any delay so that the space occupied by it may be used for the record of subsequent years. The record of third category which is purely of temporary nature, should be regularly weeded out. Thus in an office where record is of different nature and calls for a differential treament, it is desirable to earmark certain space/rooms for a particular category of record. The watch-words should be secrecy and safety of permanent record, and timely weeding out of semi-permanent and temporary record.

Secrecy and Safety of Permanent Record

Some of the permanent records, which are of very important nature, and may also be categorised as basic record, need detailed analysis.

Enrolment Ledgers

Indicating the first entry into university examinations, this ledger contains all sorts of primary information regarding the candidates such as name, father's name, permanent address, examination in which appearing and enrolment/registration number allotted. Cloumns for fruther examinations may also be drawn there. In that case it may provide a consolidated picture of the candidate concerned during his/her stay in the university. The same would apply in case of non-collegiate candidates as the enrolment ledgers are prepared year and examination-wise. The number of enrolment registers may be very large as each year thousands of students are enrolled for various courses/ examinations. As the issue of migration certificate too is an allied activity, record for both, the enrolment and migration, can be arranged in one room. Thus it is desirable that a separate room be allotted for the purpose and enrolment registers arranged there year-wise. The registers can be stacked along the walls and the central portion of the room used for seating the employees engaged in entering the particulars of fresh candidates. Attached cell, if any, can be used for disposing applications submitted for migration.

Tabulation Registers

In tabulation registers the marks obtained by the examinee, in each subject, and final position of the result is posted in respect of each candidate. For each examination there is a separate tabulation register. Thus every year the number of tabulation registers increases in proportion to the number of examinations held by the university. In universities where the number of faculties is large and the variety of courses offered and examinations held is pretty large, the number of tabulation registers may be in thousands. As it is a basic record which has to be maintained permanently, the space needed for stacking and amount of labour involved may well be imagined. At the same time it is also true that there is no other alternative and it is imperative to make arrangements for maintaining such a valuable record as it may be needed any time even after decades. For preparing duplicate marks-sheets for back years tabulation register is the only basic record. Thus special care has to be taken for the maintenance of tubulation registers.

(i) Indexing

For each examination tabulation registers are prepared in duplicate; one copy is kept in secrecy branch and the other copy in conduct (examination) branch. For preparing duplicate marks-sheet etc., only one copy, preferably the one kept in conduct branch should be used. The copy of secrecy branch must be kept in safe custody in such a way that it may be used only in very special circumstances. Needless to mention that this is desirable from the point of view of safety. In view of large number there should be proper indexing of tubulation registers year-wise or else not only the stacking but sorting and picking of the required volume would be difficult. For indexing the numbering sequence should be identical in both—the copies—in secrecy and the conduct branch. A regular process of reconcilliation for the entries made in both the wings is also required.

(ii) Sorting of Tabulation Registers

The tabulation registers for all the years irrespective of faculty or examination may be classified and categorised broadly in two classes:

(a) Current Tabulation Registers

Tabulation registers of the last two or three years may be categorised as the current tabulation registers. Tabulation registers of this category should be kept in both the concerned sections — the secrecy as well as conduct branch. The volume of current tabulation registers whether for three years or two years will mainly depend upon the space available in the section. However, it should, in no case, be less than two years as the frequency of demand for duplicate marks-sheets is generally high for the previous year also in addition to the current year.

(b) Old Tabulation Registers

All tabulation registers other than those categorised as current tabulation registers may be classified as old tabulation registers. Needless to mention the tabulation registers for subsequent years would be added to this class every year. Thus the volume of old tabulation registers will go on increasing every year in a normal way. While making arrangements for space this has to be kept in mind. For preparing the duplicate marks-sheets only one set of the tabulation registers is to be used. From the view point of maintenance of secrecy also it is desirable that only one set—either of secrecy branch or that of conduct branch is retained in use and made available for the purpose of preparation of duplicate marks-sheets. The other set must invariably be kept under lock and key. It should be taken out in emergency only and that too in the presence of a responsible officer not below the rank of Assistant Registrar. With such an arrangement the possibilities of tampering of record may be minimised. Thus the old tabulation registers of secrecy branch may be kept in record room or cellar under proper safety measures and supervision. The other set or the old tabulation registers of conduct branch, as these are needed for preparation of duplicate marks-sheets, may be kept in a strong room, just attached to the Students' Service Centre.

(iii) Stacking of Tabulation Registers

The number of tabulation registers prepared every year is generally in hundreds as for each examination there is a separate volume. When multiplied by the number of back years (since the year of establishment of University) the number of tabulation registers may be in thousands. Thus unless the process of stacking is very systematic, required tabulation register cannot be sorted out easily. The volumes of tabulation registers should be arranged year-wise, faculty-wise and examination-wise in the racks in a systematic order. Particulars of all the tabulation registers, stacked in the room, should be entered in a stock register specifically maintained for the purpose. The register may have the following columns:

Year	Faculty	Name of Exam. of which TRs have been stacked.	No. of shelves of the rack in which T.R. has been stacked (indication of shelves be written in bracket)
1	2	3	4

Indicators/labels may be pasted on almirahs or racks accordingly. The racks containing tabulation registers in the strong room attached with Students' Service Centre should be arranged along the walls only so that the space in the middle of room may be used by the persons engaged in preparation of duplicate marks-sheets.

(iv) Custody of Tabulation Registers

Responsible officers not below the rank of Section Officer should be entrusted with the responsibility of safe custody of tabulation registers. For each category of tabulation registers, mentioned above, the officers-in-charge may be made in the following manner :

Type of TRs	*Officer-in-charge*
1. Current TRs of Secrecy Branch (to be kept in section)	1. Section Officer concerned.
2. Old TRs of Secrecy Branch (To be kept in record room/cellar)	2. Dy. Registrar or Asstt. Registrar of Secrecy.
3. Current TRs of Conduct Branch (to be kept in the section)	3. Section Officer concerned.
4. Old TRs of conduct Branch (to be kept in strong room, attached with Students' Service. Centre.	4. Officer incharge of the Students' Service Centre

(v) Correction in the TRs

The tabulation register is such a sacred record that any type of correction or over writing therein should, as far as possible, be avoided. It is true the corrections consequent upon declaration of results of 'RL' (Result later), 'RW' (Result with-held), revaluation or supplementary cases have to be incorporated in the concerned tabulation registers. However, it is also true that all these corrections are made within a year. In other words no corrections should be allowed to be made in the old TRs. The correction be made with great care and only in the presence of a responsible officer who should put his initials/signatures invariably at each correction. Needless to mention that the correction can be made only by a person who has been authorised by a competent authority to do the job. Administratively it is desirable that for correction a team composed of at least two officers, preferably one from secrecy and the other from conduct, be authorised. After making corrections in the marks or nature of result a certificate be given on the back of relevant page of the TR indicating the reasons for and extent of correction. Both the officers of the correction team should put their initials below the certificate. If the quantum of work or the number of cases of corrections is large, more than one team can be constituted/aurhorised. For the puropse of uniformity and safety it is also desirable to prescribe a definite manner for writing and specific colour for ink to be used in various types of TRs. A tentative scheme for this may be outlined as under :

(a) Whenever any correction is to be made in the tabulation register, the existing entry should be scored out by a single stroke of a fountain pen; the cutting be duly initialled by the competent person.

(b) There should be no over writing for any type of correction in the tabulation register.

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(c) The use of a ball-pen should be avoided for the purpose.

(d) For corrections consequent upon revaluation or scrutiny of result Green ink may be used.

(e) The corrections which are made by the university office *suo moto* on account of clearance of RL, R.W., or U.M. (unfair means) cases should be done in a different colour say black ink.

(iv) Precautions and Mending

As tabulation register is such a record which has to be kept preserved permanently, proper care should be taken in this regard. For keeping the tabulation registers in proper condition it should be ensured that :

(a) these are handled carefully and by the authorised persons only.

(b) the room in which tabulation registers have been stacked is free from moisture and dust.

(c) treatment against white ants has been done before stacking of tabulation registers in the room.

(d) all the volumes to be stacked have been bound properly.

(e) the pasting has been done in the pages, wherever needed.

(f) the 'torn off' pages have been completed.

(g) photostat copies of missing tabulation registers (in full or part) have been arranged and the sequence has been completed.

In spite of precautions and care if there is any damage to any of the volume of tabulation registers, it should be repaired at the earliest possible. In fact, mending should be a regular feature at fixed intervals, say an year or two.

Compilation Registers

A compilation register is a record which is prepared for the purpose of having final result position after taking the marks obtained by the student in previous examinations into consideration. Thus compilation process is essential for all such courses which are of a duration of more than one year and where an examination is held at the end of each semester/session. Almost all the postgraduate courses, Honours courses, three year degree courses and professional courses fall in this category and compilation work is done at the time of preparation of result of final classes (stage) in all the cases. Where the tabulation work is done by the computer, the compilation of marks too can easily be done by the computer itself as the marks for previous examinations are already stored in the computer. However, it is possible only if the marks and the result position have been updated consequent upon clearance of RL, RW, revaluation, scrutiny and supplementary cases. Experience shows that clearance of all such cases is a very slow process. Maybe that the updation in the computer-memory is not done regularly. In the same way tabulation for some examinations may not be computerised. In such circumstances compilation is done manually and compilation registers are prepared accordingly. Some guidelines for compilation are worth mentioning in this regard.

(a) The compilation work should invariably be completed well before the starting of inflow of marks of the final class.

(b) Compilation work is a very sensitive and vulnerable job. Just by a stroke of pen the nature of result can be changed by increasing or decreasing the marks fraudulently. Thus this job should always be entrusted to a team of not less than two persons of proven honesty.

(c) Before the compiled marks of previous year are sent for tabulation or to computer, these must be checked by a responsible section officer.

(d) While checking a compilation register the checker should concentrate mainly on the correctness of the marks obtained by the candidates in his previous examinations.

(e) The checker, who should be an officer not below the rank of section officer, should put his full signatures on each page checked by him.

(f) If any mistake is found during checking of the compilation register, the team/person(s) responsible for the same should be penalised. If the mistake is of very serious nature and appears to be malafide, disciplinary action must be taken against such person(s).

(g) Like tabulation registers, there should be no over writing in the compilation registers also. Each cutting should be initalled by the checker.

(h) The compilation registers may be kept in the custody of the concerned section officer.

Marks Sheet Blanks

Marks-sheet blanks are equally vulnerable. Many a cases of forged marks sheets are reported in the newspapers these days. In fact, lack or proper safety of counters of blank marks-sheets is a situation which may encourage such malpractices. Similarly proper safety of this sensitive stationery can minimise possibilities of any type of misuse or pilferage of these blanks. Certain guidelines may be kept in view in this regard.

- (a) The blank marks-sheets should be got printed in required number only.
- (b) Particulars of each pad/book of the blanks should be properly entered in the stock register.
- (c) Books of blank marks-sheets should be stacked year, faculty and examination wise.
- (d) The Incharge Students' Service Centre where the duplicate marks-sheets are supposed to be prepared may be given the responsibility of the safe custody of blank marks-sheets. The key of the cell/room in which books of the blank counters have been stacked should be with this Section Officer.
- (e) Issue of the marks-sheet blanks may be systematised in such a way that the balance in stock register must tally with the actual number of marks-sheet counters available in the store. Indenting system may be introduced for the purpose. To regulate the system it is also desirable that the blanks be issued in the bundles of 100 number.
- (f) The dealing assistant, who gets the blanks issued, should maintain necessary record of the use of the blanks. After a bundle of 100 blanks is exhausted, he should submit indent for another bundle
- (g) It should be ensured that nowhere—whether S.S.C. or concerned section—any blank is lying unattended. The pad containing the unused blanks must be kept in safe custody.

Safe Custody of other Permanent Record

Undistributed written degrees, certificates, gold medals, list for gold medals and merit lists are also equally important items which should receive proper care as far as maintenance and safe custody is concerned. Such record may, no doubt, be kept in the section concerned but with special care. Proper accounting is a foremost condition for such items. The Section Officer should have all such items under his supervision and control.

The policy files containing relevant decisions of Syndicate/Executive Council, Senate, Academic Council and administrative orders issued for implementation of these decisions should be maintained/kept at the level of Controller of Examinations. In no case such files should be kept by an officer below the rank of Dy. Registrar. Files for important administrative decisions, taken from time to time or for various contracts finalised for the cause of examinations also be kept by Controller of Examinations himself. If the files of the categories, mentioned above, are allowed to go below the level of Controller of Examinations, it is desirable that certain officers be specifically nominated as Officer-in-charge for such files. The officer so nominated will collect/get collected all the relevant papers, documents from other sections and prepare and maintain an index for all relevant decisions, orders, minutes and other papers. Such files may preferably be kept in red or blue 'Basta' so that it can be separated from the routine files.

Timely Weeding of Semi-Permanent & Temporary Record

The broad principles to be followed in weeding out and destruction of such records is that no paper, which is important or likely to be important in future and therefore is worth preserving, should be destroyed. In Examination management some records are important at a point of time but cease to be relevant after some years. Because of cyclic nature of exmininations, fresh record is added every year. It leads to problems of space. Thus it becomes necessary to weed out undesirable record regularly. The duration of preservation and weeding out is directly linked to importance of the record to be preserved. On the basis of practical experience, a weeding schedule for such semi-permanent and temporary record is suggested hereunder:

Name of Record 1	Duration for Weeding 2
1. Award sheets of examination	3 years
2. Acceptance received from paper setters, co-examiners	3 years
3. General correspondence including representations from teachers regarding their appointment as examiner, etc.	2 years
4. Lists containing names of examiners appointed for various Exams/papers	3 years
5. College returns (received from affiliated colleges) for preparing panels of examiners	2 years
6. Assessed answer books except those which are under dispute	1 year
7. Manuscripts of question papers	1 year
8. Answer books related to cases of unfair means	1 year or till the cases are disposed off.

1	2
9. Answer books related to cases of revaluation.	1 year or till the cases are disposed off.
10. Applications received for revaluation	1 year
11. Examination application forms	1 year
12. Applications submitted for enrolment (enrolment form)	1 year
13. Registration forms for M.D./M.S. examinations.	5 years
14. Counter-foils of marks-sheets, migration certificates and provisional certificates	3 years
15. Application forms received for issuance of the following documents: (i) Marks-sheets (ii) Migration certificate (iii) Degree in absentia (iv) Provisional certificates	1 year
16. Tabulators' bags with award-sheets (where the tabulation is manual)	3 years
17. Dissertation received in connection with M.A. and M.Phil. examinations in lieu of paper(s)	2 years (copies may also be sent to concerned Deptts/Colleges.
18. Forms received for grant of scholarship	3 years or after the expiry of duration of scholarship.
19. Record related to cash section such as counter-foils of cash memos, record of incoming postal orders/demand drafts.	10 years
20. Account of blank answer-books	5 years
21. Account of blank examination application forms (priced)	5 years
22. General correspondence with Centre Superintendents.	3 years
23. General correspondence with paper-setters, examiners	2 years
24. General correspondence with students (query letters in case of non-collegiate candidates)	2 years
25. Files maintained for registration of Ph.D. candidates (individual files)	5 years or till the degree is awarded.

Weeding or Elimination Registers

Whatever record is weeded out, it should be entered in a register, specifically maintained for the purpose. Such registers may be maintained in the sections concerned under the custody of Section Officer in which date-wise number of the files/record weeded out during the day may be entered. The particulars should be entered under the following columns :

S. No.	Subject/particulars of the record weeded out	Number	Date of weeding out	Signatures of Section Officer
1	2	3	4	5

Record to be sent to Record Room

Besides the record which is to be kept permanently in the section or to be weeded out there may be some record which has to be sent to the record room. All such records intended to be stored in the record room should be sent to the officer-in-charge of the record room with an invoice in duplicate. The invoice may be prepared as under :

Invoice of the Record to be Consigned to the Record Room

S. No.	Name of the Section	Subject	Particulars of the Record File No.	Number of Notesheet pages	Number of Correspondence pages	Signature of Officer In-charge of Record Room
1	2	3	4	5	6	7

Before sending the record to the record room it should be sorted out and arranged year and subject-wise. The Section Officer should ensure that from every file which is being sent to record room the following papers have been removed:

(a) Un-necessary covers.
(b) Printed/cyclostyled reminders and explanation, if any, as these are not important and do not bear serial number.
(c) Rough copies of fair drafts except those which have been vetted by the competent authority.
(d) Proofs of finally printed papers.
(e) Office slips and flags, etc.
(f) Routine and informal notes if these do not form part of the file.
(g) Loose unimportant papers, if any.

It should also be ensured that both the note-sheet and correspondence part have been properly numbered and the file bears correct reference No. on its cover page.

Custody of Records

The record room should be under the charge of a very responsible officer, not below the rank of Section Officer. No papers should be deposited in the record room without the knowledge of the Officer-in-Charge of the record room. The duties of the Officer-in-Charge of the record room in respect of the record kept in the record room are to ensure that:

(a) the record room(s) is/are securely locked when the office closes;
(b) no unauthorised person is allowed to enter the record room or to have access to the records;
(c) the records are properly dusted and kept tidy, and that proper precautions are taken for their preservation;
(d) requisition for papers which comply with the rules are only entertained;
(e) the bundles of record are properly arranged in a systematic order and that dusty and torn out lables and covers etc., are replaced by fresh ones;
(f) the volumes of proceedings and minutes of the statutory bodies such as Syndicate, Senate, Academic Council etc., are properly bound, indexed and serially arranged;
(g) no file or paper in a file should be removed from the record room without substituting it with a requisition slip signed by official making the requisition and mentioning the purpose for such a requisition.

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DIRECTOR

Dated : 20th April, 1987

Adult Education for Rural Women and National Education Policy 1986

Nighat Basu*

It is universally accepted that women are a powerful force for development by virtue of their distinct role as mothers. Education of a mother means education of the whole family and it has been rightly pointed out that unless the women of a country are educated there is little hope for social transformation.

Women's education has been advocated right from the dawn of independence by social thinkers and reformers. In the National Policy on Education, 1986 special emphasis has been laid on Women's Education and it has been observed that female literacy from 1951 to 1981 improved from 7.93 per cent to 24.82 per cent. However, in absolute numbers, illiterate women have increased during this period from 158.7 million to 241.7 million excluding Assam. Late Smt. Indira Gandhi, the then Prime Minister of India, expressed her deep concern about women's education in India and said that female literacy is less than 25 per cent and even this is only an average of various states. In many states the percentage is even lower. In an analysis of the situation of Children in India (1984) published by the United Nation's Children's Emergency Fund, (UNICEF) it has been found that actual number of female illiterates increased with the time and such increase is faster than number of male illiterates. Further, dimensions of female illiteracy in rural India are very high. As per 1981 census the female literacy was at 24.82 per cent. In some states it was around 11.0 per cent and in the State of Jammu and Kashmir female literacy in 1981 was at 15.88 per cent.

At present, no doubt, women are seen working shoulder to shoulder with men. In some metropolitan cities we may find that women out number men in some offices or institutions. Even in some universities the female students are more in number than male students. For instance, in the University of Kashmir female students out number the male students and in the 12th Annual Convocation which was recently held in the University, the maximum number of gold medals and other prizes were bagged by the female candidates. However, this does not speak about female literacy. In spite of the high enrolment of females in the University of Kashmir, the female illiteracy continues to be very high in the entire State. In some Districts like Kupwara and Kargil, it is even to the tune of 97 per cent. The illiteracy level further increases as we proceed from town to the interior rural areas.

The Adult Education Programmes in the State of Jammu and Kashmir have been geared up in order to eradicate illiteracy in the state. In the year 1975-76 there were only 35 Ault Education Centres. The number of these centres increased to 100 in the year 1976-77 and 3650 in the year 1985-86. Further, the Adult Education Centres are expanding their wings in order to bring maximum number of the people within its fold. As per the National Education Policy, the Adult Education Programmes have three mutually reinforcing elements: Literacy, Functionality and Awareness.

Literacy is integrated with general education and is aimed at helping the masses to acquire basic knowledge about health, family planning, sanitation, nutrition and importance of environment. It also aims to enable the people to read and write. Functionality, mainly includes improvement of vocational skills for more productive use of time. It also includes acquisition of skills to supplement one's income through village industries such as poultry, farming and dairying. Awareness aims at making the learners capable to shape their own future through the inter-linking of learning, reflection and concrete action. The participants are encouraged to know about their rights, duties, laws and Government policies affecting them.

The National Policy on Education (1986) envisages that education would be used as a strategy for achieving a basic change in the status of women.

The main features of the targets and implementation strategy will consist of the following :

(i) To gear the entire education system to plan a positive interventionist role in the empowerment of women;

(ii) To promote women's studies as a part of various courses and encouragement to educational institutions to take up active programmes to further women's development;

**Associate Co-ordinator, State Resources Centre, University of Kashmir, Srinagar-*190006.

(iii) To widen the access of women in programmes of vocational, technical and professional education; and

(iv) To create dynamic managerial structure to cope with the targets envisaged.

The National Educational Policy further aims at empowerment of women in their day to day affairs of life. It believes that women become empowered through collective reflection and decision-making. The following have been identified as parameters of empowerment:

(a) Building a positive self-image and self-confidence;
(b) Developing ability to think critically;
(c) Building up group cohesion and fostering decision-making and action;
(d) Ensuring equal participation in the process of bringing about social change;
(e) Encouraging group action in order to bring about social change in the society; and
(f) Providing the wherewithal for economic independence.

The progress achieved in the literacy targets has been substantial but inadequate in relation to the size and growth of population. The percentage of literates in the recent years has considerably improved, but due to the population explosion, the corresponding illiteracy rate has also increased and is increasing day by day.

In the rural areas, particularly in the interior parts of the rural areas, people are totally ignorant about education. Majority of the people and vast majority of the women can't even read and write or read or write. The New Education Policy 1986, no doubt, has provided various noble ideals for eradication of illiteracy. But the question arises that to what extent such ideals can help to achieve the objective of universalization of the elementary education. Moreover, can these ideals help to improve the lot of women particularly rural women. The future of course will speak about it, but the experience has shown that education has not so far reached the rural women.

In a study 'Rights of the Married Women and Attitudes Towards them: An Evaluation of Awareness and Attitudes', we found that married women in the rural areas are totally unaware about the adult education programmes. The study further revealed that illiterate married women are denied their basic rights and are hardly allowed to raise their voice. They hardly command respect and do not enjoy equal status. They are hardly allowed to participate in the decision-making regarding family affairs. Right of equality, equal status, free education and freedom are unknown to the poor illiterate women.

Adult Education has a vital role in eradicating illiteracy among rural women. Literacy through Adult Education channels should reach the door-steps of the village women, as right from the sun rise to sun set they remain busy in their household work, like cooking, washing, fetching fuel, fodder, water, care of the children, animals and agriculture or earning wages or selling their products. The framers of the New National Educational Policy, while keeping problems of the rural women in mind have recommended that non-formal education centres should be community based. Responsibility of planning, selection of instructors and monitoring should be with community including parents. Increased assistance to voluntary agencies to run non-formal education centres for girls should be given. Programmes of social forestry, drinking water supply, mid-day meals, and other nutrition programmes, smokeless chullahs and other devices should be formulated to improve plight of the rural women.

Adult education has a vital role in eradicating illiteracy as literacy through non-formal means of education can reach to the door steps of the rural women. Mass scale adult education programmes should be devised to meet the day to day needs of the rural women.

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One People, One Nation

Mr. Justice P.N. Bhagwati, Former Chief Justice of India, lamented the rising tide of regionalism, linguism and communalism in the country. "We tend to forget that India is one nation and we are all Indians first and Indians last," he said while delivering the Convocation Address at the 3rd annual convocation of the Amravati University, Amaravati. He exhorted his audience to eschew narrow parochial, regional and linguistic considerations and build a strong and united India on the foundations of *tyaga* and *seva*. Excerpts:

Convocation

We find that today the unity and integrity of the nation is threatened by the divisive forces of regionalism, linguism and communalism and regional, linguistic and communal loyalties are gaining ascendancy in national life and seeking to tear apart and destroy national integrity. We tend to forget that India is one nation and we are all Indians first and Indians last. It is time we remind ourselves what the great visionary and builder of modern India, Jawaharlal Nehru said, "Who dies if India lives, who lives if India dies?" We must realise, and this is unfortunately what many in public life tend to overlook, sometimes out of ignorance of the forces of history and sometimes deliberately with a view to promoting their self-interest, that national interest must inevitably and forever prevail over any other considerations proceeding from regional, linguistic or communal attachments. The history of India over the past centuries bears witness to the fact that India was at no time a single political unit. Even during the reign of the Maurya dynasty, though a large part of the country was under the sovereignty of the Mauryan kings, there were considerable portions of the territory which were under the rule of independent kingdoms. So also during the Mughal rule which extended over large parts of the territory of India, there were independent rulers who enjoyed political sovereignty over the territories of their respective kingdoms. It is an interesting fact of history that India was forged into a nation neither on account of a common language nor on account of the continued existence of a single political regime over its territories but on account of a common culture evolved over the centuries. It is cultural unity—something more fundamental and enduring than any other bond which may unite the people of a country together which has welded this country into a nation. But until the advent of the British rule, it was not constituted into a single political unit. There were, throughout the period of history for which we have fairly authenticated account, various kingdoms and principalities which were occasionally engaged in conflict with one another. During the British rule, India became a compact political unit having one single political regime over its entire territories and this led to the evolution of the concept of a nation. This concept of one nation took firm roots in the minds and hearts of the people during the struggle for independence under the leadership of Mahatma Gandhi. He has rightly been called the Father of the Nation because it was he who awakened in the people of this country a sense of national consciousness and instilled in them a high sense of patriotism without which it is not possible to build a country into nationhood. By the time the Constitution of India came to be enacted, insurgent India, breaking a new path of non-violent revolution and fighting to free itself from the shackles of foreign domination, had emerged into nationhood and "the people of India" were inspired by a new enthusiasm, a high and noble spirit of sacrifice and above all, a strong sense of nationalism and in the Constitution which they framed, they set about the task of a strong nation based on certain cherished values for which they had fought.

The Preamble of the Constitution was, therefore, framed with great care and deliberation so that it reflects the high purpose and noble objective of the Constitution makers. The Preamable declares in highly emotive words pregnant with meaning and significance:

"WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC and to secure to all its citizens:

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all;

FRATERNITY assuring the dignity of the individual and the unity and integrity of the Nation;

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION."

These words embody the hopes and aspirations of the people and capture and reproduce the social, economic and political philosophy underlying the Constitution and running through the warp and woof of its entire fabric. It is significant to note that the Preamble emphasises that the people who have given to themselves this glorious document are the people of India, the people of this great nation called India and it gives expression to the resolve of the people of India to constitute India into a sovereign socialist secular democratic republic and to promote among all its citizens fraternity assuring the dignity of the individual and the unity and integrity of the nation. The Constitution makers were aware of the past history of the country and they were also conscious that the divisive forces of regionalism, linguism and communalism may one day raise their ugly head and threaten the unity and integrity of the nation, particularly in the context of the partition of India and the ever present danger of the imperialist forces adopting new startegems, apparently innocuous, but calculated to destabilise India and re-establish their hegemony and, therefore, they laid great emphasis on the unity and integrity of the nation in the Preamble of the Constitution and its various articles. You will thus see that under the Constitution the entire country is taken as one nation and every effort of the Constitution makers is directed towards emphasising, maintaining and preserving the unity and integrity of the nation.

But, unfortunately, we find that in the last few years, owing to the emergence of narrow parochial loyalties fostered by interested parties with a view to gaining advantage for themselves, a serious threat was developed to the unity and integrity of the nation and the very concept of India as a nation is in peril. The threat is obtrusive at some places while at others it is still silent and is masquerading under the guise of apparently innocuous and rather attractive claptrap. The reason is that when the Constitution came into operation, we took the spirit of nationhood for granted and paid little attention to nourish it, unmindful of the fact that it was a hard won concept. We allowed 'sons of the soil' demands to develop claiming special treatment on the basis of residence in the concerned State, because recognising and conceding such demands had a populist appeal. The result is that 'sons of the soil' claims, though not altogether illegitimate if confined within reasonable bounds, are breaking asunder the unity and integrity of the nation by fostering and strengthening narrow parochial loyalties based on language and residence within a State. Today unfortunately, a citizen who has his permanent residence in a state entertains the feeling that he must have preferential claim to be appointed to an office or post in the state or to be admitted to an educational institution within the state vis-a-vis a citizen who has his permanent residence in another state, because the latter is an outsider and must yield place to a citizen who is a permanent resident of the state, irrespective of merit. This, in my opinion, is a dangerous feeling which, if allowed to grow indiscriminately, might one day break up the country into fragments. We must therefore eschew all narrow parochial, regional and linguistic considerations and begin to regard ourselves as Indians and Indians alone. It should be a matter of no consequence to us whether we are Telugus or Gujaratis or Marathis or Bengalis or Keralites. There is a strong historical and cultural thread which binds us together, regardless of where we are residing or what language we are speaking. The divisive tendency which has developed of late that we are Gujaratis or Marathis or Telugus or Tamils must be eradicated from our minds and hearts and we must think only of India as our country and we must be proud of being Indians. This, our youth alone can do. I have no faith in the people belonging to my generation because some times with a view to gaining short term political or personal objectives, they appeal to narrow, parochial regional loyalties, forgetting that in the process they tend to destroy the unity and integrity of the nation.

We have fortunately a great tradition of service and sacrifice handed down to us by our ancestors which has always emphasised the cultural and spiritual unity of this great land. The function of true education must be to create awareness in the students about the great cultural heritage of India. It is a priceless inheritance which we have got from our forefathers and we have got to preserve and maintain it and pass it on to the future generations. Education must therefore help us to get to the heart and intimate sense of our culture. It is for this reason necessary that we must set our sights anew, take our foundations on our own being, our own mind and our own spirit and establish a continuity between the still living power of our past and the yet uncreated powers of our future. Our education must, above all, give us a sense of national pride and a deep and abiding faith in the future of our country. This of course must not lead to narrow chauvinistic patriotism which contracts the mind and lends to retrogressive sentimentalism. It should not degenerate into a clinging to the past forms which were once a living frame of our culture, but are now dead or dying. Rather it should open out the mind to the eternal values and varieties that have always formed the bedrock of our culture. We must not blindly imitate the west, for their value system is different from ours and so is their socio-economic structure. The framework of their educational system is essentially elitist in nature and that is the system which we are mechanically and thoughtlessly trying to impose on the non-elite who constitute the bulk of our population. The result is that our education has failed in the achievement of its true purpose and it has not brought out to full advantage all that is in the individual citizen, his potentialities, his originality, his creativity, his habits and attitudes of mind and his sense of values. We cannot forget that a nation is ultimately nothing but an aggregate of individuals united by a common cultural link and sharing identity of historical experience. If, therefore, we want our nation to progress, to acquire its innate greatness and to take its rightful place in the comity of nations and the life of the human race, we should improve the quality of education keeping in mind our socio-economic needs, our national objectives, our knowledge and culture, our native temperament and our social genius. But at the same time our education should also promote universal humanism which is the hallmark of true education. We should be ready to receive noble thoughts and ideas from all directions. Mahatma Gandhi said:

> "I do not want my house to be walked on all sides and my windows to be stuffed. I want the cultures of all the lands to be blown about my house as freely as possible. But I refuse to be blown off my feet by any."

Our Vedic prayer also says: We should not shun any new ideas and thoughts. Our education must foster innovation and criticism, debate and dissent. It should provoke the intelligentsia into abrasive behaviour. It should promote intellectual and cutural freedom with tolerance not only for the thought that we like, but also for the thought that we hate, for it is only by discussion and dissent that there can be human progress, material as well as spiritual.

No stronger plea for freedom can be conceived than Shri Shankaracharya's exclamation:

> "Wisdom cannot be attained except by investigation and discussion."

And there is no greater assertion of tolerance than in the following words from the Rig Veda:

> "Let us come together, let us discuss and let harmony be thereby achieved. This should be the aim and objective of education."

It is also necessary that our younger generation should be inspired by a sense of dedication and a burning desire to serve the country and help the large masses of our people who are living a life of poverty and destitution. To achieve this end a certain amount of sacrifice has inevitably to be made. It is not without sacrifice that we can hope to build India into a great nation and to raise her once again to that highest pinnacle of glory which it was once her undoubted privilege to occupy. And this should not be very difficult in a country like ours which has a long tradition of service and sacrifice. Even in a country like the United States of America, which is dominated by a materialistic approach to life, the youth is inspired by a sense of service and sacrifice. Then why should it not be so in a country like India where our culture and philosophy are built on the foundation of *tyaga* and *seva* and where we need dedicated men much more than in the United States? We have always believed that *tyaga*, that is, renunciation, and not *bhoga*, that is pleasure seeking, should be the motivating force for our actions. One of our Upanishads says:

> "Not by meditation, nor by prosperity but by renunciation alone we can attain immortality."

But what does this renunciation mean? It does not mean that you must give up the world and go and live in a forest or cave, away from the ignoble strife of the maddening crowd. The renunciation which our ancients extolled is not renunciation of work but renunciation of attachment. Work we must, or else the social and economic order will collapse. But work must be done without attachment, with a sense of discrimination and in a spirit of dedication.

Our Vedas as well as Upanishads, tell us that there is no antithesis between spirituality on the one hand and vigorous pursuit of life on the other. Our past history also shows that our spirituality has never become an impediment in the way of material pursuits. In fact, it has acted as a great stimulus to full and complete development of all facets of life. That is why when we look at the past history of India, we find her stupendous vitality, her inexhaustible power and joy of life and her absolute prolific creativeness in all fields of human endeavour. What our spirituality requires of us in *tyaga*, renunciation of our little self, of our ego, and manifestation of the higher self in us, and the positive expression of this *tyaga*, is *seva* or service. We must rise above our little ego and express our true self, the self that realises its oneness with all and gives itself away to all in love and service. These have been the eternal values which have inspired us through the ages and these values have sustained us over the last five thousand years when other civilisations and cultures have perished long ago and now live only in the pages of history or the archives of the museum. That is why Swami Vivekananda said as far back as 1897 on his return to India from the West:

> "The longest night seems to be passing away, the sorest trouble seems to be coming to an end at last, the seeming corpse appears to be awaking India, this motherland of ours is rising from her deep long sleep. None can resist her any more; never is she going to sleep any more; no outward powers can hold her back any more; for the infinite giant is rising to her feet."

These were the prophetic words of the great Swami. But for the time being they seem to have become unreal. The great values that we cherished in the past unfortunately appear to have been submerged by self-centredness, self-aggrandizement, greed for wealth and power and exploitation. It appears that since independence we have cared more to exploit our newly won freedom for selfish purposes than to serve its cause or enhance its value. We seem to have developed a mood of complacency, an inordinate love of money and power and a suicidal tendency to indulge in narrow parochial interests and petty issues. Widespread corruption is eating into the vitals of our nation and corroding its moral fabric. There is a mad race for power, position and wealth, forgetting all moral and ethical values. We are indulging in the name of democracy and under the guise of promoting it, in every conceivable form of indiscipline, on grounds of individual or group interest, regardless of the national interest. We have not learnt the lesson that self-discipline and tolerance are [illegible] democratic way of life and that desired changes are to be brought about by democratic and constitutional means and not by agitations and violence. No doubt some of these lessons are being burnt into our souls today and we are beginning to realise that no nation can march forward without discipline and character. But what is most necessary to impress upon us all is that today, more than ever before, we need to inspire ourselves with the twin ideals of *tyaga* and *seva*. We cannot build this great country, we cannot destroy its backwardness and make of it a truly progressive and enlightened country unless our people are once again imbued with the spirit of renunciation and service. We have before us the great example of Mahatma Gandhi, the Father of the Nation. He rekindled in us these great values of renunciation and service and through them he brought us our freedom. Now having secured our freedom, we must not forget these values. The best of human achievements proceed from us when we think least of ourselves. "He that findeth his life shall lose it" said Jesus "and he that loseth his life for my sake shall find it". This has been the teaching of the great masters throughout history and I would earnestly appeal to you, my young friends, to bear this teaching in mind and dedicate yourselves to the service of the country in fullest measure. Whether you have little ability or great ability, whether you have one talent or ten talents, is not of much importance. What you do with what you have is what counts. There is joy in being wedded to something greater than yourself. It is divine to be gripped by higher loyalties. The secret of an integrated life is to choose a cause that commands the best in you, something that you believe with all your heart and then, to give yourself up to that cause with all your mind and strength. That is what I would like you to do to submerge your little ego, to subordinate your personal interest and surrender yourself to the cause of India's starving millions.

My young friends no one in Modern India felt more deeply than Mahatma Gandhi the anguish and suffering of the large masses of our people. When Rabindranath Tagore in one of his poems painted a beautiful picture of birds singing hymns of praise as they soar into the sky, Gandhiji said; "But I have had the pain of watching birds. . . who for want of strength could not be coaxed even into a flutter of their wings. The human bird under the Indian sky gets up weaker than when he pretended to retire. For millions it is an eternal vigil or an eternal trance. . . . . I have found it impossible to soothe suffering patients with a song from Kabir. The hungry millions ask for one poem; invigorating food." This show how deeply moved was Mahatma Gandhi by the misery and suffering of millions of our countrymen. God has been kind to us. He has given us enough. Let us bend all that in the service of mankind. So long as poverty and misery and suffering is there, we cannot afford to rest. We have to build a new India, an India of the dream of Swami Vivekananda and Mahatma Gandhi, an India which would shedeth eternal light over the world. There is no doubt that the highest and the most splendid destiny is reserved to India, but it is only if we give ourselves whole heartedly to the service of our poor suffering masses, then alone will this great destiny be achieved. As we close, let us recall the words of that great visionary and dreamer, Jawaharlal Nehru:

> "The service of India means the service of the millions who suffer. It means the ending of poverty and ignorance and disease and inequality of opportunity. The ambition of the greatest man of our generation has been to wipe every tear from every eye. That may be beyond us, but as long as there are tears and suffering, so long our work will not be over." ☐

Modernising University Administration

Association of Indian Universities (AIU) organised a Group Discussion on Modernising University Administration on 30th April—1 May 1987. The opening session commenced with a presentation by Prof. Yash Pal, Chairman, University Grants Commission on the theme **'Policy Thrusts in Higher Education—Equity, Excellence and Efficiency.'** He focussed on the declining credibility of our university system because of the low level of quality of education and lack of relevance of course contents. He, however, observed that the problem was not confined to India only as many countries in the developed world also faced similar problems.

He believed that excellence existed in the university system and needed to be promoted through creative research.

He regretted the rising compartmentalization in the university system. Wherever a new course, culture or values is to be introduced administrative decisions are taken to set up separate departments. They may become nuclei of excellence but do not allow cross fertilization of ideas. He stressed the need to do away with such artificial barriers to accelerate the pace of technological transformation. Instead the emphasis should be on sharing research inputs of one institution with another.

He referred to the absence of public relations in the university system and felt that innovations in education, both in Physical and Social Sciences, were being made and ought to be highlighted to strengthen confidence in the university system. Prof. Yash Pal was very optimistic about the overall functioning of the universities which, he felt, were moving in right direction.

For promoting excellence, he pleaded with the universities to curb inbreeding. He informed that the Government will shortly set up a number of Academic Staff Colleges for continuous training of teachers all over the country.

Prof. Yash Pal also touched upon autonomous colleges and the State Councils of Higher Education. He hoped that these programmes as envisaged in the National Policy on Education—1986 will go a long way in promoting excellence in the institutions of higher education.

In the discussion that followed the presentation, it emerged that educational foundation for promoting excellence was weak because of uneven availability of infrastructural facilities in different types of institutions of higher education. It was, therefore, suggested that some minimum facilities be provided in all institutions. Members also emphasised the need to protect academic, financial and administrative autonomy of the universities.

The second session was devoted to **'Planning for Excellence : Restructuring of Courses'**. In his paper, Prof. R.G. Takwale dealt with the relevance of the structure of courses provided for the undergraduate students and opined that the existing courses were confined only to the cognitive aspects of education and did not help in developing an alround personality of the student. As a result, the students do not get satisfactory employment and are frustrated. He referred to efforts at raising the relevance of courses through the introduction of foundation courses, core courses and applied courses which have not yielded desirable results. Prof. Takwale, therefore, proposed a modification of the UGC framework by emphasizing introduction of such contents as vocational courses, personality development, community services and project work. The proposed courses, should be planned by the individual colleges keeping in view the local requirements and be autonomous of the centralised system of university administration.

He informed that such courses were being implemented as a pilot project in Colleges under Poona University for the last 4-5 years. Extension activities like NSS, Adult Education, Rural Development are incorporated in community development oriented courses, while sports, yoga, oratory, dramatics, etc are incorporated in personality development courses.

During the discussion that ensued the presentation, it was suggested that the UGC may undertake a comprehensive study of the effectiveness of such programmes at different universities.

The third and fourth sessions were devoted to the theme **'Student Support Services'**.

Prof. K.J. Mahale, in his presentation dealt with **student support services in relation to sports and youth activities.** Referring to the National Policy on Education—1986 document, he said that sports had been made an integral part of education and provisions were being made to ensure participation of every student in youth activities such as NCC, NSS, Scouting and Guiding, adventure or other suitable activities. He informed that atleast nine universities have introduced NCC at elective level and a Sub-Committee had been set up at national level to examine its introduction as a compulsory subject at undergraduate level.

He regretted that sports in our universities had remained a neglected area and that sports infrastructure has been sadly lacking in our campuses. However, with the acceptance of the UGC recommendations by the government, some States had initiated steps to implement these recommendations. The acceptance of the recommendation that the teachers in Physical Education will have the status as those who teach conventional courses, will go a long way in promoting sports development. In the sphere of cultural and related activities he emphasised development of specialised courses in cultural activities by each university and college with UGC's financial help.

The participants made the following suggestions for raising sports standards: Adequate sports infrastructure should be provided in all universities; Relevant courses in sports medicine should be introduced and research in physical education should be promoted; Linkages between school, college and university sports should be strengthened; Continuous training of coaches should be undertaken; Students should be motivated by extending financial assistance and providing sufficient linkages to sports in academic career; and Senior faculty members should be involved in sports programmes.

Dr. (Miss) M.D. Bengalee, deliberated upon the problems relating to **attitudinal and career orientation of the college and university students.** It was maintained that the lack of appropriate mechanisms for guidance and counselling of students in the institutions of higher education had impinged upon the effectiveness of teaching-learning processes. This had resulted in the increased incidence of anti-social activities like drug-addiction. She emphasized the urgent need to provide effective student guidance and counselling services preferably in the forms of equipping library information centres with up-to-date data on the nature of courses offered in different institutions in the country; the trend of employment opportunities in the job market to help students make right choices on courses; and training of some university students and teachers on counselling and guidance, especially with reference to educational psychology. She referred to the experiments conducted by the Bombay University and felt that the university's experiences could be shared by other institutions as well.

In the open discussion, the participants were agreed that to make student guidance and counselling effective, it was necessary to have appropriate manpower planning at the national level; guidance and counselling services facilities should be available from high school level, and guidance and counselling courses be included in various teacher-training programmes.

The fifth session was devoted to **'Planning for Value Orientation in Education'.** Introducing the topic Prof. Ramaranjan Mukherji defined values as virtues and qualities through application and practice of which maximum benefit would be derived by maximum number of people. He brought out clearly that all values—social, moral ethical, democratic—are manifestations and representations of tradition or culture, of constitution and finally of scientific investigation. While narrating the history behind development of value orientation and presenting extracts from the New Education Policy, he put forward certain suggestions which had the consensus of the House:

(i) Wherever feasible, there can be a course on Value Orientation compulsory to all at the undergraduate level;

(ii) The course structure should focus on values in all disciplines cutting across the barriers of different disciplines;

(iii) Some areas of course structure can be:

(a) Man in relation to nature, (b) Man in relation to society, (c) Man in relation to environment, (d) Man in relation to himself;

(iv) In order to overcome initial resistance from teachers, training programmes for teachers in value orientation and preparation of resource materials in this area may be initiated;

(v) Life sketches of scientists, essays written by eminent persons on oneness of religions and those involving unity, integrity, pride in national heritage should be part of course work for all students;

(vi) Efforts must be made to introduce certain activities like yoga, transcendental meditation, NSS to bring a meaningful development of personality, imbibing values;

(vii) Certain basic values like love, compassion, sensitivity to weaker sections, awareness, concern and participation may be built in course structure and lessons for the courses;

(viii) Newer values related to internationalism, work ethics, social justice, co-operation may also be considered;

(ix) Every attempt should be made towards fusion of science and humanities; and

(x) Value orientation may be made more effective if all attempts are made by everyone concerned to precept and practice values.

The sixth session had the theme **'Resources for Higher Education and UGC's Role.'**

Dr. S.K. Khanna, Secretary, UGC, in his frank and forthright exposition traced the background on resources position during the 5th, 6th and 7th Plan. Against an estimated fourteen hundred crores made into twelve hundred crores by the Planning Commission, what was initially provided for higher education was 370 crores and thanks to the implementation of New Education Policy and the justification for the programme, the higher education sector has almost got doubled allocation. The following few suggestions emerged after discussions:

(i) Resources from the Central sector (UGC) and the State sector should be looked at in conjunction and the proposed State Higher Education Councils must initiate proper procedures for integrating the Central and the State sector resources for universities;

(ii) Efforts must be made to augment resources and generate resources through enhanced tuition fees, consultancy services and donations with attractive tax free provisions for contributions for donors, etc;

(iii) The industry and the community be involved and made to participate in financing higher education;

(v) Attempts must be made to pursuade UGC to allow the universities to utilise the grants given by them even if the State Governments are not able to provide the matching grants;

(vi) Grant of loans to deserving students and their recovery over a longer period may be considered; and

(vii) Due consideration may be given to get universities start production centres and over a period of time generate resources from such centres AIU may organise a study on the issues related to universities floating a company as a part of their potential to generate resources.

The seventh session was devoted to **'Computers in University Administration'.**

Leading the discussion, Prof. S. Sampath pleaded for looking upon computers as "Intellect-Amplifiers." Highlighting the striking developments taking place over the whole gamut of computer technology ranging from large mainframes through minicomputers and microcomputers, he pointed out the significance of the emergence of personal computers (PCs) which have grown during the last few years from being vehicles for word-processing and Video-games units machines that rival minis and micros. The PC sits on a desk and is a device that can be operated by anyone willing to invest a few hours in learning to use the software that is available for a variety of chosen applications.

Spelling out the role that Computer systems can usefully play in various facets of university administration, Prof. Sampath proposed that each Administration become equipped with a dedicated Computer system—chosen possibly from the lower end of the mini computer range on the upper end of the microcomputer, nourished by a network of PCs. He suggested that the infrastructure at each place should be adequate and capable o field-enhancement in response t felt needs.

Prof. Sampath suggested that th AIU may set up a Technical Committee to draw up a Plan of Action to be remitted to UGC with regard to the proposed infrastructural facilities to assist universities in discharging their administrative responsibilities.

Pointing out the importance of training as a tool in diffusing Computer-culture in university Administration, he suggested setting up of a Training and Co-ordination Cell, under the aegis of the AIU, on the lines of a Training Division in operation at the National Informatics Centre of the Department of Electronics, Government of India, which is well-equipped and is carrying out meaningful training programmes to benefit officers and staff of Government Agencies, both Central and State.

Prof. Sampath concluded his presentation with a call for the adoption of an evolutionary, man-centred approach using appropriate computing aids, taking full advantage of the phenomenal advances taking place in the multi-faceted realm of information technology.

The closing session, chaired by the President, AIU, Prof G. Ram Reddy, adopted the reports presented by the rapporteurs, V. Natarajan and M.M. Ansari. The participants appreciated AIU's efforts at organising training programmes for different levels of university administrators. The programme proposed for the year 1987-88 was approved. Invitation extended by Aligarh Muslim University to host training programme for the Registrars was accepted. □

Central Assistance for Anna University

The Ministry of Human Resource Development (Department of Education), Government of India, have sanctioned a sum of Rs. 20 lakhs as grant-in-aid to the Anna University for meeting the non-recurring expenditure during 1986-87, under Modernisation of Laboratories Scheme for (i) Modernisation of Geo-technical Engineering Laboratory in the Division of Soil Mechanics and Foundation Engineering at the College of Engineering; and (ii) Modernisation of Workshop, Air-Craft Structural Machines Laboratories at the Madras Institute of Technology.

A sum of Rs. 7 lakhs has also been sanctioned for the creation of Infrastructure in Water Resources Management at the Centre for Water Resources under the area of Emerging Technology Scheme.

A further sum of Rs. 20 lakhs has been made available to the university for meeting the recurring and non-recurring expenditure for Expansion in intake from 33 to 60 in Electronics Engineering (Rs. 10 lakhs — non-recurring : equipment); and Upgradation of Electronics Engineering Department for UG and PG programmes at the Madras Institute of Technology of this University : Rs. 10.00 lakhs (Equipment (Rs. 9.00 lakhs + Recurring: Rs. 1.00 lakh).

Prof. Satchidananda Murthy Visits CUSAT

Prof. K. Satchidananda Murthy, Vice-Chairman, University Grants Commission, stressed the need for research and studies relevant to the values and needs of our society. He was addressing teachers and senior administrators of the Cochin University of Science and Technology recently. He felt that nothing, not even politics or lack of funds, should be viewed as deterrents for teaching and research.

India spends more money on education than any other developing country, he pointed out. The responsibility of teachers was the most important factor for improving educational standards. It was unfortunate that some teachers boast of production of large number of research papers and of guiding a good number of Ph.D. students. He said that the quality of research work alone should be the criterion of a good teacher and a researcher, he asserted.

Prof. Murthy also stressed the need for co-ordination among departments within the university and among various universities to avoid wastage of money caused by the duplication of research programmes and publication of separate journals instead of multidisciplinary ones.

Sophisticated Instrumentation Facilities

The Regional Sophisticated Instrumentation Centre (RSIC) at Central Drug Research Institute, Lucknow is among the first four such centres established in the country in 1974-75 by the Department of Science and Technology, Govt. of India, to provide sophisticated instrumentation services to researchers at nominal charges. Some of the facilities offered by the RSIC are:

Circular Dichrograph, Electron Microscope (TEM and SEM), Elemental Analyser, High Pressure Liquid Chromatograph, IR Spectrophotometers, Mass spectrometers (EI, CI with positive and negative ion detection and FD), NMR spectrometers (^{1}H, 13-C 400 Mhz FT-NMR), and UV/Visible spectrophotometer.

Further details can be had from : The Head, Regional Sophisticated Instrumentation Centre, Central Drug Research Institute, Lucknow - 226001.

IGNOU Study Centres

A Study Centre of the Indira Gandhi National Open University (IGNOU) has started functioning at the North Eastern Hill University, Shillong. The Centre is located at the Distance Education Centre of the University and Dr. R.V. Vyas has been appointed as its Co-ordinator.

Another Study Centre of the National Open University has also been formally inaugurated at the Gauhati University. At present the Centre is located at the Department of Sanskrit of the University and is providing support/contact services to the centrally admitted 75 IGNOU students of the Management course.

Academic Staff College

The University Grants Commission is reported to have agreed to provide financial assostance to the Himachal Pradesh University for setting up an academic staff college under the UGC scheme for the reorientation of newly appointed college and university teachers. The college will start functioning from the next academic session. The assistance will cover expenditure on the staff and the building for the college. The State Government would also provide substantial assistance for the purpose.

Block Grants to Tamilnadu Varsities Raised

The Tamil Nadu State Government is reported to have decided to increase the block grants of the older universities in the State. The Universities to be benefited are Madras, Anna, Annamalai and Madurai-Kamaraj.

Madras University will get Rs. 200 lakhs as against Rs. 66 lakhs while the grant for Anna University has been enhanced from Rs. 180 lakhs to Rs. 335.5 lakhs. An increase of Rs. 122 lakhs has been announced for Annamalai University. It will now get Rs. 176 lakhs instead of Rs. 54 lakhs. In the case of Madurai Kamaraj University, the grant has been enhanced from Rs. 27 lakhs to Rs. 131 lakhs.

Media Research Centres in Varsities

The University Grants Commission (UGC) proposes to set up educational media research centres in selected universities. These centres are intended for the production of software for educational broadcasts and telecasts and for training of manpower for this purpose. This was revealed by the Union Minister of State for Education, Mrs. Krishna Sahi, recently in Lok Sabha.

News from Agril. Varsities

Workshop on Pesticide Residues

Ever increasing population had posed a major challenge not only to the policy makers, planners and administrators but to the Agricultural scientists also, said Mr. L.D. Kataria, Vice-Chancellor, Haryana Agricultural University (HAU). Hence, to meet this challenge, use of Agricultural inputs such as improved seeds, irrigation, machinery and pesticides is most essential. Mr. Kataria was delivering the inaugural address at the 3rd All India Workshop on Pesticide Residues held at HAU. Underlining the importance of pesticide Mr. Kataria said that without these inputs the lush green crops can turn into waste due to unchecked ravages of insect-pests, diseases, weeds, rodents and nematoes. In spite of much less consumption of pesticides per unit area in India the accidents due to these toxicants have been maximum mainly due to their mishandling and lack of awareness amongst the farming community. This is partly because of illiteracy and partly because of our environmental conditions which make it difficult to wear protective gears.

Mr. Kataria emphasised that the scientists should take up systematic extension work on safe and judicious use of pesticides so that it can prove a boon for humanity. Pesticide residue is a field where multidisciplinary approach and close association and collaboration of Pesticide Chemist, Entomologist, Plant Pathologist, Agronomist, Nematologist and scientists from other related fields, are very much needed to produce useful data of applied value.

Nigerian Delegation Visits HAU

A Nigerian delegation headed by Major General Mohammadu Gado Nasko, Agriculture Minister of Nigeria visited Haryana Agricultural University recently. During their visit the members of the delegation were taken round the various farms, veterinary clinic, Exhibition organised at the College of Agriculture, Gandhi Bhavan and the Directorate of Extension Education. They also held discussions with the Vice-Chancellor, Shri L.D. Kataria.

Speaking at a meeting with the Vice-Chancellor and other senior scientists of the university, the elegation leader Mr. Nasko said that as there were large areas of cultural, social and agro-climatic similarities between his country and India, the research and extension techniques of Indian scientists would be of much use in Nigeria. He further said that he would like the farmers and scientists in Nigeria to adopt the extension methods and research techniques evolved by the scientists at HAU.

Mr. Nasko lauded the contribution of India in the development of Nigeria and said that there were about 6000 Indians engaged at various levels of teaching in his country. Mr. Nasko was particularly impressed with the efforts of the scientists in carrying the technology from the labs to the farmers' fields and lauded the farm practical programmes taken up by the students. He felt that it would

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We Congratulate ....

(1) **Prof. W.U. Malik who has been appointed as Vice-Chancellor of the University of Allahabad, Allahabad.**

(2) **Dr. (Mrs.) Jaya Kothai Pillai who has been appointed as Vice-Chancellor of Mother Teresa Women's University, Kodaikanal.**

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be easier to adopt many of the farm practices of the HAU scientists in his country because of the similarities in the ways and manners of the Indian and Nigerian farmers.

The Vice-Chancellor, Mr. L.D. Kataria apprised the Nigerian delegation about the linkages between the State Government, farmers and the extension scientists at the university and also gave a resume of the work being done in research, teaching and extension. The Vice-Chancellor also presented to Mr. Nasko, a Haryanvi doll and a package of university literature.

News from Abroad

TWAS Research Grants

The Third World Academy of Sciences (TWAS) supports Third World scientists of outstanding merit in their research in the natural sciences. This support is in the form of grants to carry out specific research projects. For 1987 the programme is confined to Pure and Applied Mathematics, Experimental Physics, Molecular Biology and Biochemistry.

The TWAS Research Grant is neither a travel grant nor a study fellowship. It is intended to cover the costs of purchasing scientific equipment, expendable supplies, scientific literature and services not normally available within the department/research institution where the research is to be carried out. The salary of the grantee is specifically excluded. The grant may, however, be used to support one or two graduate students directly associated with the research project.

Grants for projects in Mathematics cover a period of one to three years with an amount of US $2000 to 5000 per year, and in case of Experimental Physics, Molecular Biology and Biochemistry for a period of one year with a maximum amount of US $ 5,000 according to the type and needs of the project.

The recipients must be nationals of a Third World Country, hold an advanced academic degree and be employed by a university or research institute in the Third World and retain that position throughout the project. Research is to be conducted on a specific project and at a research institution located in the Third World. Priority is given to young scientists at an early stage in their career. A Review Committee meets twice a year in May and November to process applications.

Further details can be had from:

Research Grants,
Third World Academy of Sciences,
International Centre for Theoretical Physics (ICTP),
P.O. Box 586, 34100 Trieste,
ITALY.

Association of Indian Universities

16 Kotla Marg, New Delhi-110002

Application from Indian citizens for the following posts are invited in the prescribed form available on payment of Rs. 2/- from the office of the Association of Indian Universities, 16 Kotla Marg, New Delhi - 110002.

1. **Research Officer** (One) : Revised Scale Rs. 3000-4500.
"A first class postgraduate degree in Science/Mathematics or a High Second Class in Language/Humanities with or at least 7 years of experience of research in the area of examinations in colleges/universities, including mass conducted exams, admission tests and computer applications."
Deputationists from Universities/Colleges will be preferred.
Desirable : Good knowledge and experience of computer applications in university administration.

2. **Senior Cultural Officer** (One) : Revised Scale Rs. 3000-4500.
"Master's degree from a recognised institution/University. Five years experience with a minimum of two years in youth/organising/cultural activities at universities/colleges/other organisations. Incumbent will be responsible for administration of cultural activities at Inter-University/National/International Levels. Deputationists from University/Colleges will be preferred.

All posts carry allowances generally at the Central Govt. rates. Total Emoluments at the initial of the revised scale Rs. 3000-4500 at current rates of allowances etc. are Rs. 4390/- p.m. both for Research Officer and Senior Cultural Officer.

Relaxation in any of the requirements may be made in exceptional cases. The Association reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant. Canvassing in any form by or on behalf of a candidate will be a disqualification.

Applications complete in all respects should reach the office by **30 May 1987**. Applications received after the last date or without complete information may not be entertained. SC/ST/Ex-servicemen will be given preference.

VECTOR CONTROL RESEARCH CENTRE

(Indian Council of Medical Research)

Medical Complex, Indira Nagar

PONDICHERRY - 605006

M. Sc. in Medical Entomology

ADMISSION NOTICE FOR THE SECOND BATCH FOR THE ACADEMIC YEAR 1987-88

Applications are invited for admission to the 2 Year M.Sc. Course (Trimester Pattern) in Medical Entomology for the academic year 1987-88. The course is affiliated to the Central University, Pondicherry. Those who have passed (i) B.Sc. with Zoology or Biology as one of the subjects, (ii) M.B.B.S., (iii) B.V.Sc. or (iv) B.Sc. in Medical Laboratory Technology are eligible for admission.

The course is run by the Vector Control Research Centre, which is one of the permanent research, institutes of the Indian Council of Medical Research, New Delhi and is also supported by the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases. The Centre has excellent facilities for research and training in vector borne diseases and their control. The faculty includes both the staff of the Centre and invited Guest lecturers from research institutions in India and abroad.

Six candidates (one seat reserved for SC/ST candidates) wil be selected on the basis of a written test. Another three candidates will be admitted from among inservice candidates nominated by State/Central Governments and another three seats are reserved for WHO sponsored candidates. The qualifying degrees of foreign students will have to be recognized by the Central University, Pondicherry. For the six open seats, only first class graduates will be called for the written test (SC/ST candidates securing II class in the qualifying degree are eligible to appear for the written test).

Application forms and prospectus can be obtained from "The Director, Vector Control Research Centre, Indira Nagar, Pondicherry-605 006" on or before **31st May, 1987** on payment of Rs. 15/- by a crossed Indian Postal Order drawn in favour of the "Director, Vector Control Research Centre, Pondicherry-605 006". Request for application will be entertained only after **1st May, 1987**. The last date for receipt of completed application form is **15th June, 1987**. Entrance test will be held on **11th July, 1987**. Regular classes will commence from **27th July, 1987**.

Dr. P.K. Rajagopalan
DIRECTOR

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

ADDITIONS TO AIU LIBRARY

Allan, Boris. *Graphic art on the Commodore 64 : Techniques for high resolution graphics.* London, Sunshine, 1984. iii, 120p.

Barnes, Gregory A. *American university : A world guide.* Delhi, Allied (c 1984) xiii, 196p.

Beane, James A and others. *Curriculum planning and development.* Boston, Allyn and Bacon (c1986) xvii, 445p.

Bhatnagar R.P. and Agrawal, Vidya. *Educational administration : planning and supervision.* Delhi, Anupama, 1986. xi, 252p.

Brain, Keith and Brain, Steven. *Artificial intelligence on the Commodore 64: Make your micro think.* London, Sunshine (c1984) 144p.

Cochrane, John. *Simulation techniques on the Commodore 64: Practical routines for home and business use.* London, Sunshine (c1984) ix, 163p.

Craig, Grance. *Human development.* New Jersey, Prentice-Hall (c1986) xv, 606p.

Evans, Susan S and others. *Assessment for instruction.* Boston, Allyn and Bacon (c1986) viii, 373p.

Girja Kumar. *Library development in India.* Delhi, Vikas (c1986) xi, 568p.

Gutek, Gerald L. *Education in the United States : An historical perspective.* New Jersey, Prentice-Hall (c1986) xiv, 367p.

Harris, Ben M. *Developmental teacher evaluation.* Boston, Allyn and Bacon (c1986) x, 308p.

Holmberg, Borje. *Growth and structure of distance education.* London, Croom Helm (c1986) 163p.

Jaggi O.P *History of Science, Technology and Medicine in India. 15V. V.2. Science in Ancient India.* Delhi, Atma Ram, 1986. ix, 178p.

———. *History of Science, Technology and Medicine in India, 15V. V.6. Indian Astronomy and Mathematics.* Delhi, Atma Ram, 1986. xiii, 272p.

MacIver, R.M. and Page, Charles H. *Society: An introductory analysis.* Delhi, Macmillan, 1974. xv, 697p.

Merrill, Paul F and others. *Computers in education.* New Jersey, Prentice-Hall (c1986) xii, 340p.

Muzumdar, Haridas T. *Cultural history of India, 5V, V.1. India's religious heritage.* Bombay, Allied (c1986) xxii, 223p.

Nanda, J.N. *Science and technology in India's transformation.* Delhi, Concept (c1986) x, 159p.

Narayana Rao, S. *Wok adjustment and job satisfaction of teachers.* Delhi, Mittal, 1986. viii, 160.

Omprakash, S. *Caste and politics in Indian education.* Delhi, Deep and Deep (c1986) 290p.

Paris, OECD. *Youth and work in Australia: Comprehensive policy agenda.* Paris, Author, 1986. 103p.

———. *Youth employment in France: Recent strategies.* Paris, Author, 1984, 111p.

Roper, Paul. *Machine code games routines for the Commodore 64: Essential routines for game design.* London, Sunshine (c1984) vii, 175p.

Ross, Steven M. *Basic programming for educators.* New Jersey, Prentice Hall (c1986) xiv, 431p.

Scriven, John and Hall, Patrick. *Programming for education on the Commodore 64: A handbook for primary education.* London, Sunshine, (c1984) ix, 144p.

Shah, Vimal P and Agrawal, Binod C., ed. *Reservation: Policy, programme and issues.* Jaipur, Rawat, 1986. vii, 286p.

Sidhu, L.S., ed. *Modern perspectives in physical education and sport Sciences.* Delhi, Harnam, 1986. xv, 288p.

Veena, D.R. *Education and economic growth.* Delhi, Ashish, 1987. 115p.

Waugh, Ian. *Commodore 64 music: Making music with your micro.* London, Sunshine (c1985) xii, 212p.

White, John. *Writing strategy games on your Commodore 64: Techniques for intelligent games.* London, Sunshine (c1984) x, 140p.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

HUMANITIES

Philosophy

1. Maitra, Tapati. *Analytic and synthetic.* Burdwan.

2. Verma, Shiv Kumar. *Swami Vivekanand evam Mahatma Gandhi ke dharmik vicharon ka tulnatmak adhyayan.* Awadhesh.

Fine Arts

Music

1. Mathur, Sudha. *Hindustani shastriya sangeet kee adhunik pravrittiyan : Kriyatmak paksh ke sandarbh mein vishesh adhyayan,* Delhi.

2. Nahar, Prem Lata. *Sarang, malhar aur kanhra ang ke ragon ka samvet adhyayan.* Delhi.

3. Radha, V. *The origin, development and future of Karnatak concert music.* Delhi.

Dance

1. Barboza, Francis Peter. *Christianity and Indian dance forms with special reference to the southern styles.* Baroda.

Language & Literature

English

1. Buty, Nisha. *Walter Peter: Critic of art and literature.* **D. Litt.** Nagpur.

2. Celly, Ashok Kumar. *Civilisation theme in Family Bronte and D.H. Lawrence.* Rajasthan.

3. Haldar, Chitrita. *An assessment of Oscar Wildes creative works in the light of his literary theory.* Calcutta.

4. Joshi, Svati Umashankar. *Poetry as disclosure: A phenomenological interpretation of Wallace Stevens' poetics.* Baroda.

5. Khalid Iqbal, S. *An assessment of Mathew Arnold's poetry as criticism of life.* Calcutta.

6. Nayak, Pabitra Mohan. *A study on the contribution of Sonepur Durbar to literature,* 1837-1937. Sambalpur.

7. Ojha, Birendra Kr. *Matthew Arnold: The critics as artist.* Burdwan.

8. Vasundhara, P. *Paul Scott's India.* Osmania.

French

1. Anuradha, Seshan. *Traduction commentee de francois le bossu: Written by La Comtesse de Segur.* JNU.

Sanskrit

1. Chandrasekharan Nayar, K. *A study on Sukasandesa of Lakshmidasa.* Kerala.

2. Dubey, Sarla. *Mahabharat ka kavya saundarya.* HS Gour.

3. Faijunnesha Begum. *Beni Samhar Natak: Sameeksha.* Burdwan.

4. Ramulu, A. *A study of differences between Bhatta and Prabhakara Schools (Mimamsa).* Osmania.

5. Sanyal, Kaberi. *Some social aspects of the inscriptions of Bengal, C. 3rd century B.C. to C. 12th century A.D.* Burdwan.

6. Sharma, Sunita. *Brahma Vaivarta Purana mein Vaisnava dharma ka swarup.* Delhi.

7. Tewari, Raj Kumar. *Religious study of Sanskrit inscriptions, 600 A.D.-1100 A.D.* Delhi.

Hindi

1. Chandel, Onkar Singh. *Mahakavi Thakur Gopal Sharan Singh ke kavya ka anusheelan.* Awadhesh.

2. Chandramohan, K.M. *Agyeya ke upanyason mein adhunik bodh.* Madurai.

3. Gautam, Rajinder Parkash. *Pant ke kavya mein abhijatyavadi aur swachchandatavadi tattva.* Delhi.

4. Hegde, Venkatraman Narayan. *Fanishwarnath Renu: The literature.* Karnatak.

5. Pandey, Rajani Kant. *Prayogvad and Bharat Bhushan Agraj.* Bangalore.

6. Sahu, Arjuno. *Bhagavati Charan Verma ke upanyas sahitya mein samajik samasyaen.* Sambalpur.

7. Singh, Onkar Nath. *Tulsi sahitya ke marmik prasangon ka manovaigyanik anusheelan: Pramukh adhar granth Shri Ramcharitmanas.* Awadhesh.

Urdu

1. S. Imtiaz Hasnain. *Standardization and modernization of languages : A case study of Urdu.* JNU.

Bengali

1. Bej, Deb Kumar. *Madhusudan-o-adhunik-purba Bangla sahitya.* Burdwan.
2. Bhattacharya, Anshubhusan. *Asnkardev-o-Chaitanyadev-Tulanamulak bichar: Samaj-o-darshane.* Burdwan.
3. Chattopadhyay, Krishna. *Vaisnab padavalir bhasha.* Burdwan.
4. Gupta, Indrani. *Kabi Nabinchandra Sen.* Burdwan.
5. Mallik, Jolly. *Bangla maha kabyik upanyas.* Calcutta.
6. Mukhopadhyay, Jaba. *Unabinsa satake Kalidasar Rachanabalir anubad.* Calcutta.

Gujarati

1. Ranpura, K.M. *The critical study of the themetic treatment in Gujarati mythological novels with comparative study of novels of common themes.* Saurashtra.

Tamil

1. Arunagiri, M. *Satire in Tamil literature.* Madurai.
2. Kothandapani, R. *The origin and development of Chentamil.* Madurai.
3. Natarajan, S. *Tragic women characters in Tamil epics.* Kerala.
4. Ramakrishnan, M. *Thiruppugazh: A study.* Madurai.
5. Sivanupandian, V. *Short stories of K. Alagirisamy.* Madurai.
6. Sundarappa, N. *Andal padalkalum valipadum.* Madurai.

Telugu

1. Sree Rangacharya, Ch. *Gudimella Ramanujacharyula khandakavyamulu samagra-pariseelanamu.* Osmania.

Geography

1. Chatewar, Likhaneewar. *A study of the fidvial dynamics of the twin basins of the rivers Lish. & Gish.* North Bengal.
2. Sharma, Narvada. *Settlements in canal region their socio-economic and demographic characteristics and correlates: A case study of Lunkasar Tehsil, Distt. Bikaner.* Rajasthan.

History

1. Chattopadhyay, Pranab Kumar. *Aspects of urban nationalist politics in Bengal, 1937-1947.* Calcutta.
2. Namboodiri, P.P. Narayanan. *Aryans in South India with special reference to Namboodiris in Kerala.* Kerala.
3. Sharma, Subhash Chandra. *Pandit Ravi Shankar Shukla: Life and times.* HS Gour.
4. Shastri, Ajay Mitra. *India as seen in the Kuttanimata of Damodar Gupta.* Nagpur.

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- * Names of Professors and Readers/Assistant Professors together with their academic titles department-wise;
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INDIAN NATIONAL SCIENCE ACADEMY

Bahadur Shah Zafar Marg, New Delhi-110002

INVITATION FOR NOMINATIONS—1988

Nominations are invited for the award of **"Indira Gandhi Prize for Popularization of Science for the Year 1988."**

The prize will be awarded for outstanding work by an individual for the popularization of science **in any Indian language, including English**. The nominee must have had a distinguished career as a writer, editor, journalist, lecturer, radio or television programme director, film producer, science photographer or as an illustrator, which has enabled him/her to interpret science (including medicine), research and technology to the public. He/she should have a knowledge of the role of science, technology and research in the enrichment of cultural heritage and in solution of problems of humanity. Work already recognized for any other award will not be accepted.

The prize is open to any Indian national residing in the country and **will carry Rs. 10,000/- in Cash and a Bronze Medal.** The prize winner will be expected to deliver a lecture at the venue to be fixed by the Academy. **Nominations** for the award of prize **may be made by the Fellows of INSA, Vice-Chancellors, Deans, Principals, Directors of leading Scientific Institutions and National Laboratories and Editors of Indian Science Journals** in the prescribed proforma which will be supplied on request.

The Nomination form duly completed in all respects may be sent so as to **reach the Executive Secretary, Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi - 110002 latest by July 15, 1987 indicating on the envelope "Nomination for Indira Gandhi Prize for Popularization of Science."**

BIRLA INSTITUTE OF TECHNOLOGY

MESRA : RANCHI

Admission to 3-Semester Postgraduate Programme, 1987

Applications are invited for admission to the following 3-Semester Postgraduate Courses leading to M.E. and M. Pharm. Degree :

Courses	Specialisations	
M.E. Degree Programme		
(i) Electrical Engineering	1. Control Systems	2. Power Systems
(ii) Electronics & Comm. Engg.	1. Microwave Engg.	2. Instrumentation & Control
(iii) Mechanical Engg.	1. Heat Power	—
(iv) Space Engg. & Rocketry	1. Aerodynamics	2. Rocket Propulsion
M. Pharm. Degree Programme	1. Pharmaceutics	2. Pharmaceutical Chemistry

Eligibility Requirements

(1) (i) **For M.E. Electrical, Electronics & Comm. & Mechanical Engg.**

A Bachelor's Degree in the appropriate branch of Engineering with a minimum of 60% marks in aggregate or Sec. A & B of the A.M.I.E. (India).

(ii) **For M.E. Space Engineering & Rocketry**

A Bachelor's Degree in Mechanical or Aeronautical or Chemical Engineering with a minimum of 60% marks in aggregate or Sec. A & B of A.M.I.E. (India) or A.M. Aero. S.T. or A.M.I. Ch. E. or equivalent.

(iii) **For M. Pharm**

A Bachelor's Degree in Pharmacy with a minimum of 60% marks in aggregate.

(2) Must have qualified at the Graduate Aptitude Test in Engineering (GATE).

Note: SC/ST candidates having a minimum of 55% aggregate marks are eligible.

15% seats are reserved for Scheduled Caste candidates and 7½% for Scheduled Tribes candidates. However, to be considered for admission they should have qualified at the GATE.

Students admitted to the above courses will receive Ministry of Human Resource Development Training Fellowship @ Rs. 1,000/- per month.

Application forms can be obtained from the Institute Office by sending a Postal Order for Rs. 25/- payable to the Registrar, Birla Institute of Technology, Mesra, at Mesra Post Office and a self-addressed envelope of size 280 mm x 125 mm having 1.10 stamp. Forms will be issued upto June 25, 1987. The name of the course for which a form is sought must be distinctly mentioned in the letter.

Applications complete in all respects should reach the Registrar, Birla Institute of Technology, P.O. Mesra, Ranchi - 835 215, latest by **July 4, 1987.**

J.B. Saksena
REGISTRAR & OSD

ADMISSIONS

THE UNIVERSITY OF HYDERABAD

HYDERABAD - 500 134

ADMISSION ANNOUNCEMENT 1987-88

Applications are invited for admission to the following full-time Post-graduate courses/Programmes of study for the academic session 1987-88:

Ph.D. PROGRAMME IN : Mathematics; Computer/Information Sciences; Physics; Chemistry; Life Sciences.

Humanities—English, Philosophy, Hindi, Telugu and Urdu.

Social Sciences - Economics; History; Political Science ; Sociology, Anthropology.

M. Phil. Programme (2 Semesters) In: Mathematics (Applied Mathematics, Mathematics, Statistics - OR).

Physics/Physics with Materials Science, Modern Optics/Laser Physics; Chemistry/Chemistry with specialisation in Chemical Education for inservice candidates, Life Sciences (Bio-Chemistry, Plant Sciences, Animal Sciences).

Humanities - English, Philosophy, Hindi, Telugu and Urdu.

Social Sciences - Economics, History, Political Sciences, Sociology, Anthropology.

M.Sc. Courses (4 Semesters) In : Mathematics (Applied Mathematics, Mathematics, Statistics - OR).

Physics, Chemistry, Life Sciences (Bio-Chemistry, Plant Sciences, Animal Sciences).

M.A. Courses (4 Semesters) In : English, Philosophy, Hindi, Telugu, Urdu, Economics, History, Political Science, Sociology, Anthropology.

Courses in Computer Science : Master of Computer Applications (MCA) - 6 Semesters, Diploma in Computer Applications (DCA) - 2 Semesters, B. Tech in Computer Science and Engg.(P. G. Course) 6 Semesters; M.Tech. in Computer Science/Artificial Intelligence and Robotics - 3 Semesters.

Entrance Examinations for M.A., M.Sc., MCA, DCA, and B. Tech. Courses : Admissions are made on All-India basis, in order of merit, taking into consideration the past academic record (25%) and performance of the candidates in the Entrance Examinations (75%). These examinations consisting of a written paper only will be held from 24th June to 29th June, 1987 at - HYDERABAD, DELHI, BOMBAY, CALCUTTA AND MADRAS.

Candidates will appear for the test at their own expense.

Entrance Examinations for M. Tech., M. Phil., and Ph.D. programmes:

The Entrance examinations for M. Tech. and M. Phil programmes (consisting of a written paper and an interview) and Ph.D., programme (Interview only) will be held only at HYDERABAD between 7th to 9th July, 1987. Candidates attending the tests for these programmes will be eligible for reimbursement of II Class railway fare to the extent provided for in the prospectus-1987.

Eligibility : Detailed information regarding minimum qualifications and other requirements to various courses is given in the PROSPECTUS-1987.

Candidates who have graduated under 10+2+3 system of education are eligible to apply. Candidates who have graduated under 10+2+2 system of education are also eligible to apply only if they have successfully completed a one year bridge course as per UGC guidelines.

Candidates whose results are awaited and also those who are due to appear for the final examination of the qualifying degree before the date of the Entrance Examination are also eligible to apply and appear for the Entrance examination. They must however submit the results of the final examination at the latest by **31st August, 1987** failing which the provisional admission, if granted, will automatically stand cancelled.

Reservations : Special provision has been made for admission of candidates belonging to Scheduled Castes and Scheduled Tribes. 15% and 7.5% of the seats in each course are reserved for SC and ST candidates respectively with provision for interchangeability where necessary. Relaxation in the minimum percentage of marks required for admission is also provided. 3% of the seats in each course are reserved for physically handicapped candidates.

How To Apply

Application form together with PROSPECTUS-1987 containing detailed instructions including eligibility conditions for admission to each course/programme of study can be obtained:

(i) **In Person :** Either from the Academic Section in the Campus at Gachi Bowli or from "The Golden Threshold" premises at Nampally Station Road, Hyderabad - 500 001 against cash payment of Rs. 8/- for each set (Rs. 2/- for each additional application form), from **4-5-87.**

(ii) **By Post :** From the Deputy Registrar (Acad. and Exams), University of Hyderabad, P.O. Central University, Hyderabad 500 134 by sending him (i) requisition, (ii) two self-addressed slips; (iii) crossed Demand Draft drawn in favour of the Registrar, University of Hyderabad, on State Bank of India, Andhra Bank, or any Nationalised Bank at Hyderabad for Rs. 10/- for a set of one application form and Prospectus and Rs. 2/- for each additional application form.

Note: Separate application is required for each course. However, for the following courses, one application for each set of courses (Courses as mentioned below) is sufficient.

(1) M.Sc. Maths (Applied Maths, Maths, Statistics - OR).

(2) M.Sc. Life Sciences (Bio-Chemistry, Plant Sciences, Animal Sciences).

(3) M.C.A. and D.C.A.

(4) M. Tech. (Comp. Sc., Arti. Intelligence and Robotics).

(5) M. Phil. Maths (Applied Maths, Maths, Statistics - OR).

(6) M. Phil. in Physics, Physics with Material Sciences, Modern Optics/Laser Physics.

(7) M. Phil. in Chemistry/Chemistry with Specialisation in Chemical Education.

(8) M. Phil. in Life Sciences (Bio-Chemistry, Plant Sciences, Animal Sciences).

(9) M.A. in Sociology, Anthropology.

(10) M. Phil. in Sociology, Anthropology.

Financial Assistance

Adequate provision exists for financial assistance to the students in the form of Merit Scholarships, Merit-Cum-Means Scholarships of the value of Rs. 200/- p.m. each, Free Studentships, M. Phil. Fellowships of Rs. 600/- p.m. M. Tech. Scholarships of Rs. 1,000/- p.m. for GATE qualified candidates, Junior Research Fellowships for NET qualified candidates and various other scholarships and fellowships from other funding agencies. For further details refer to PROSPECTUS-87.

General Facilities

A well stocked Library, a Central Instrumentation Laboratory with many highly sophisticated instruments, a well equipped Computer Centre working round the clock and facilities like Hostel accommodation, Medical care and sports, shopping complex, Bank, Post Office etc., are available.

Last Date for Receiving Request for Applications by Post:	**16-5-1987 (Saturday)**
Last Date for Receiving Completed Applications	**29-5-1987 (Friday)**

The University will not be responsible for any postal delay.

K.C. Reddy
REGISTRAR

(iii) Number of posts may be increased or decreased.

(iv) The qualifications may be relaxed in case of poor response.

(v) The University reserves the right not to fill up any of the posts advertised.

APPLICATION FORMS can be had from the Head, Publication Bureau, Punjabi Universiy, Patiala on payment of Rs. 5/- at the counter OR by sending IPO's of Rs. 5/- in favour of the Registrar, alongwith self-addressed envelope of the size 25 x 10 cms. with 3.40 paise postage, superscribing on it REQUEST FOR APPLICATION FORM FOR THE POST OF________________.

In service candidates should apply through proper channel with an advance copy to the University.

Application form, complete in all respects, should reach the Registrar by **15-5-87**.

REGISTRAR

APPOINTMENTS

PUNJABI UNIVERSITY
PATIALA

Advt. No. 5/Rect./PRO/87

Applications are invited for the following posts:

1. **Professors :** One each in the Department of Punjabi and Sri Guru Granth Sahib Studies.

Grade : Rs. 1500-60-1800-100-2000/125-2-2500 (UGC).

Specializations for Professor in Sri Guru Granth Sahib Studies :

Desirable : (i) Specialization in Sikh Theology,

(ii) Good knowledge of classical Language i.e. Persian and/or Sanskrit.

2. **Lecturers :** Four in the Department of Botany and two in Statistics Department.

Grade : Rs. 700-40-1100-50-1600 (UGC).

Specializations for Lecturers in Botany

For one post : Ecology/Physiology/Tissue Culture

For 2nd post : Microbiology/Cell Biology (interdisciplinary)

For two posts : Mycology/Morphology.

3. **University Research Scholars :** Two each in the Deptts. of Chemistry, Botany, Human Biology, Mathematics, Law, Punjabi, Nuclear Science Laboratory and **One each** in the Deptts. of Astronomy and Space Science, Geography, Statistics, Public Administration, Philosophy, Forensic Science, Political Science, Journalism and Mass Communications.

@Rs. 800/- p.m. (fixed) for two years in the first instance alongwith Contingency and other benefits as per rules.

Age limit : Preferably below 30 years (40 years for Women).

Qualifications: Research Scholars should hold a Master's Degree in the relevant subject with atleast 50% marks.

Note:

(i) For teaching and research posts, candidates should possess working knowledge of Punjabi upto Punjabi Parveshika/Matric standard.

(ii) Details of QUALIFICATIONS etc. will be supplied alongwith application forms.

MASS COMMUNICATION RESEARCH CENTRE JAMIA MILLIA ISLAMIA

Jamia Nagar, New Delhi-110025

Advertisement No. : II/1987

The Mass Communication Research Centre invites applications for the following posts:

I. **Professor in Distance Education**—(One)

(1500-2500—likely to be revised soon)

Educational and other qualifications

1. An eminent scholar with published work of high quality, actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

2. Post-graduate Degree with a Doctorate in Natural or Social Science.

3. At least ten years experience in teaching and developing curricula at various levels.

4. Experience in developing programmes in the Audio-Visual Media.

5. Administrative experience to organise media programmes.

II. Reader in Research Evaluation —(One)

(1200-1900—likely to be revised soon).

Educational and other qualifications

Essential

1. Good academic record with a first or high second class degree of an Indian University or equivalent qualification. A doctorate degree or equivalent published work in one of the Social Sciences or Mass Communications or independent published work of a high standard in a social science or Communication Research.

2. At least 5 years' experience of field research/teaching in an institution of higher education.

Desirable

Experience of Media Research, ability to frame, guide and conduct research projects.

III. Lecturer in Editing (Video/Film)—(One)

(700-1600—likely to be revised soon).

Educational and other qualifications

Essential

1. Degree of a recognised University.

2. Degree or Diploma or equivalent in picture and sound editing from a recognised University or Institute.

3. At least 2 years' professional experience in an organisation or institution engaged in Film/TV production or training.

OR

1. A Master's Degree of a recognised University.

2. At least 4 years' professional experience in picture and sound editing in an organization or institution engaged in Film/TV production.

OR

1. Degree of a recognized University or equivalent.

2. At least 5 years' professional experience in picture and sound editing in an organisation or institution engaged in Film/TV production or training.

Desirable

1. Good knowledge of Film and TV media in India and abroad.

2. Teaching experience.

IV. Lecturer in Research and Evaluation—(One)

(700-1600—likely to be revised soon).

Educational and other qualifications

Essential

1. Good academic record with a first or high second class degree of an Indian University or equivalent published work in one of the Social Sciences or Mass Communications or independent published work of a high standard in a Social Science or Communication Research. At least two years' experience of field research/teaching in an institution of higher education.

Desirable

Experience of media Research, ability to frame, guide and conduct research projects.

V. Lecturer in Graphics—(One)

(700-1600—likely to be revised soon).

Educational and other qualifications

Essential

1. Degree of a recognised University.

2. Degree or Diploma or equivalent in Fine Arts from a recognised University or Institute.

3. At least two years' professional experience including teaching in Graphics/Animation in a responsible capacity in an institution or organisation of repute.

OR

1. Master's Degree of a recognised University.

2. At least four years' professional experience including teaching in Graphics/Animation in a responsible capacity in an institution or organisation of repute.

OR

1. Degree of a recognized University or equivalent.

2. At least five years' professional experience including teaching in Graphics/Animation in a responsible capacity in an institution or organisation of repute.

Desirable

Good knowledge of film and TV medium in India and abroad.

IV. Lecturer in Still Photography—(One)

(700-1600—likely to be revised soon).

Educational and other qualifications

Essential

1. Degree of a recognized University.

2. Degree or Diploma or equivalent in Still Photography/Cinematography from a recognized University or Institute.

3. At least two years' professional experience including teaching in Still Photography in an organisation or institution of repute.

OR

1. Master's Degree of a recognized University.

2. At least four years' professional experience including teaching in Still Photography in an organisation or institution of repute.

OR

1. Degree of a recognized University or equivalent .

2. At least five years' professional experience including teaching in Still Photography in an organisation or institution of repute.

Desirable

Good knowledge of Radio, Film and TV medium in India and abroad.

VII. Engineer-in-charge—(One)

(1500-2000—likely to be revised soon).

Educational and other qualifications

Essential

1. II class degree in Telecommunication/Electronics or Electrical Engineering.

OR

I Class Master's Degree in Physics with specialization in Telecommunication/Electronics.

2. Wide experience in the design/development/installation and maintenance of sound and T.V. equipment, including film equipment, for at least 8 years of which 5 years should be in responsible position in a leading or Industrial/Research/Broadcasting organisations.

3. Proven ability to guide Junior Engineers in the maintenance of colour T.V. Studio Equipment, Sound Film Euuipment.

4. Proficiency in English.

Desirable

Experience in teaching TV hardware and preparing courses for the same; familiarity with satellite broadcasting.

Proficiency in Hindi or Urdu.

Age

Below 50 years, relaxable in exceptional cases.

VIII. Engineer (Maintenance)—(One)

(1100-1600—likely to be revised soon).

Educational and other qualifications

Essential

1. IInd Class Degree in Telecommunication/Electronics/Electrical Engineering.

OR

First class Master's Degree in Physics with Electronics.

2. First hand experience in the maintenance of TV studio equipment/sound/film, for at least 6 years of which 3 years might be in the capacity of Team Leader in the Maintenance Group.

3. Ability to draw up Maintenance Schedule for sound and film equipment and carry out system checks.

4. Proficiency in English.

Desirable

Knowledge of Statellite broadcasting and digital circuits. Knowledge of Urdu or Hindi.

Age

Below 40 years, relaxable in special cases.

IX. **Assistant Engineers (Electronics/Electrical/Air-conditioning)** —(Four)

(700-1300—likely to be revised soon).

Educational and other qualifications

Essential

1. Degree in Telecommunication/Electronics/Electrical Engineering or its equivalent.

OR

Diploma in Sound Recording or Sound Engineering from a reputed institute.

2. Experience in the maintenance of colour TV, Sound/Film equipment for at least 3 years.

3. Evidence of specialization in one or more of the following jobs:

(i) Colour TV equipment /camera including VTRs, sound equipment, switchers and special effects generator.

(ii) Film equipment including film editing and film lab. equipment.

(iii) Central Airconditioning plants.

4. Proficiency in English.

Desirable

Knowledge of Urdu and Hindi.

Age

Below 35 years.

X. **Senior Engineering Assistants** —(Three)

(2000-3500—revised).

Educational and other qualifications

Essential

1. Degree in Telecommunication/Electronics/Electrical Engineering or its equivalent.

OR

Diploma in Sound Recording or Sound Engineering.

2. Experience in the maintenance of colour T.V. Sound/Film equipment for at least 3 years.

3. Evidence of specialization in one or more of the following jobs:

(i) Colour T.V. equipment, camera including VTRs, sound equipment, switchers and special effects generators.

(ii) Film equipment including film editing and film Lab. equipment.

(iii) Central Airconditioning plant.

4. Proficiency in English.

Desirable

Knowledge of Hindi and Urdu.

Age

Below 35 years.

XI. **Media Librarian**—(One)

(700-1300--likely to be revised soon).

Educational and other qualifications:

Essential

1. First or Second Class B.A./B.Sc./B. Com. plus Fitst or Second Class M. Lib. Science Degree.

OR

First or Second class M.A./M.Sc./M. Com. Degree and First or Second Class B. Library Science or postgraduate Diplomia in Library Science.

2. Two years experience of an Audio Visual Library.

Desirable

Ability to operate audio-visual appliances.

XII **Technician** —(Four)
(1400-2300-Revised)
(Airconditioning, sound, electrical and maintenance)

XIII **Cameraman Gr-II**—(Four)
(1640-2900 Revised)

XIV **Production Assistant**—(Two)
(1640-2900 Revised)

XV. **Sound Recordist**—(One)
(1400-2300 Revised)

XVI **Floor Manager**—(One)
(1400-2300 Revised)

XVII **Stores Officer**—(One)
(1640-2900 Revised)

XVIII **Unit Manager**—(One)
(1640-2900 Revised)

XIX **Film Projectionist**—(One)
(1200-2040 Revised)

XX **Laboratory Assistant** —(One)
(1200-2040 Revised)

XXI **Electrician (Jr. Technician)**—(One)
(1200-2040 Revised)

XXII **Stenographer/PA**—(One)
(1400-2600 Revised)

XXIII **Steno-Typist** —(One)
(1200-2040 Revised)

XXIV **Junior Clerks-cum-typist**(Seven)
(950-1500 Revised)

XXV **Carpenter**—(One)
(1200-2040 Revised)

XXVI **Gestetner Machine Operator**—(One)
(800-1500 Revised)

XXVII **Drivers**—(Three)
(950-1500 Revised)

XXVIII **Library Attendant** —(One)
(800-1150 Revised)

XXIX **Helpers**—(Seven)
(750-940 Revised)

XXX **Light Boys**—(Four)
(750-940 Revised)

XXXI **Safaiwalas**—(Three)
(750-940 Revised).

Note

(i) Any of the qualifications mentioned above can be relaxed at the discretion of the Selection Committee in the case of candidates otherwise exceptionally qualified.

(ii) Those who have already applied need not apply again.

DA, CCA, HRA, PF, Gratuity, Pension and other benefits will be given as per Jamia rules.

Application forms (alongwith the qualifications for posts from Sr. No. 12-31) can be had from the Administrative Officer, Mass Communication Research Centre on any day except Sundays and holidays either personally between 10.00 a.m. to 12.00 noon or by sending a self addressed and stamped envelope. Application should be accompanied with crossed Indian Postal Order or a Bank Draft for Rs. 7/- (Rs. 2/- for SC/ST candidates) in the name of the Administrative Officer, Mass Communication Research Centre, Jamia Millia Islamia, Jamia Nagar, New Delhi-110025.

The last date for receipt of applications is **29-5-1987.**

M.B. Mughal
ADMINISTRATIVE
OFFICER

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002. Grams: ASINDU. Phones: 3315105, 3313390, 3312305, 3310059 and 3312429. Telex 331 5578 AIU IN. Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E 2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

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University News

MONDAY, MAY 11, 1987

Rs. 1.50

UNIT
19 MAY 1987
C.F.T.R.I. MYSORE

stice D.A. Desai, Chairman, Law Commission, making a point at the Panel Discussion on the proposed Central Educational Tribunal. On his left are Prof. G. Ram Reddy, President, AIU & Vice-Chancellor, Indira Gandhi National Open University and Dr. Jagdish Narain, Secretary, AIU.

Janata Shikshan Prasarak Mandal's

B.N. COLLEGE OF ENGINEERING & POLYTECHNIC

PUSAD - 445215

Distt. Yavatmal (Maharashtra)

VACANCIES AVAILABLE

Applications on plain paper accompanied by complete bio-data with attested copies of certificates are invited from qualified persons for the following posts so as to reach the principal on or before **29th May, 1987**.

	Number of Vacancies									
	Prof.			*Asstt. Prof.*			*Lecturer*			
Department	*Open*	*OBC*	*SC/ST VJNT*	*Open*	*OBC*	*SC/ST VJNT*	*Open*	*OBC*	*SC/ST VJNT*	*Polytechnic*
Civil Engg.	—	—	1	1	1	1	6	1	3	3
App. Mech.	1	—	—	1	1	1	3	1	2	3
Electronics	1	—	—	1	1	1	8	1	4	3
Mech. Engg.	1 (Prod)	—	—	1	1	1	3	2	1	2
Computer Engg.	—	—	—	1	—	—	1	—	1	—
Physics	—	—	—	—	—	—	—	—	1	1
Chemistry	—	—	—	—	—	—	—	—	1	—
Mathematics	—	—	—	—	—	1	1	—	1	—
Workshop Suptd.	—	—	—	1	—	—	—	—	—	—

Librarian—1 Post

Qualifications

1. Professor

Good Academic record with post graduate qualification in respective branch with ten years experience of teaching and/or industry/and/or Research. Teaching experience will be preferred.

2. Assistant Professor

A Good academic record with post-graudate qualification in respective branch of Engineering with seven years experience of teaching and/or Research and/or Industry.

3. Lecturer in Physics, Chemistry and Mathematics

(1) M. Phil/Ph.D. with atleast IInd class at Master Degree, Or

(2) High IInd Class 54% and/or above at Master's degree and IInd Class at graduate level.

Or

(3) IInd Class at Master's degree and 1st Class at graduate level.

4. Lecturers in Engineering Subjects

Master's degree in appropriate branch of Engineering or a first class B.E. Teaching experience will be preferred in case of graudate candidates.

5. Librarian

Good academic record with atleast a high IInd Class Master's degree in the subjects other than Library Science. Master's degree in Library Science with 1st Class or High IInd Class.

(1) If suitable B.C. candidates are not available or not found suitable open category candidates will be considered for temporary appointment for one academic session only.

(2) Higher start can be considered in case of exceptionally qualified candidates. Attractive service conditions are already in force.

The Applications should be accompanied by D/D or Postal order for Rs. 10/- payable to the Principal, College of Engineering, Pusad.

PRINCIPAL

BHAVNAGAR UNIVERSITY

Gaurishanker Lake Road,
University Campus,
Bhavnagar-364 002.

No. Esta/2/85/Corri./151/281/87.
Dated : 2-5-1987

CORRIGENDUM

Reference Advertisement for the post of Registrar, the age limit for candidates who are not in service of Bhavnagar University may also be relaxed in deserving cases at the discretion of the University.

B.F. Shah
REGISTRAR

ASSOCIATION OF INDIAN UNIVERSITIES

AIU House, 16 Kotla Marg
New Delhi 110002

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UNIVERSITY NEWS

VOL. XXV MAY 11
No. 19 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor:
SUTINDER SINGH

Challenge of Vocationalisation

It is disconcerting to note that the plan for vocationalisation of school education is going to be put off by yet another year as the minimum infrastructure for introducing vocational courses in schools across the country is not ready. Instead of working out a strategy to operationalize the implementation of the programme commencing this July, it has now been decided by the State Education Ministers' Conference to use 1987-88 for preparatory work "with a missionary zeal." The Conference has felt contented with the decision to set up a Joint Council for Vocational Education at the Centre and similar Councils in the States for administering the programmes efficiently.

It may be recalled that the Kothari Commission had recommended in 1966 that "a concerted and sustained programme" was needed to ensure that by 1986, some 20% of all enrolments at the lower secondary level and some 50% beyond Class X are in part time or full time vocational and professional courses. It had further envisaged that vocational education courses at school stage should be predominantly terminal in character, with adequate opportunities, for the exceptionally gifted child to rejoin the mainstream and move higher through further study.

The Kothari Commission touched the crux of the problem when it observed that "despite repeated exhortation, it is unfortunately still widely felt that vocational education at the school level is an inferior form of education, fit only for those who fail in general education and the last choice of parents and students." Therefore, it has pleaded for a concerted effort on the part of the government and the industry, "through enlightened wage policies, vocational guidance and the education of public opinion to promote the status and value of the skilled craftsman and technician." Apparently, we failed to adopt a concerted and sustained programme along the road, as according to the Programme of Action, now produced by the Ministry of Human Resource Development, in 1985 the intake of students diverted for vocational courses was estimated to be 0.72 lakhs against 25 lakh students seeking admission to 10+2 stage.

The importance of imparting vocational education at the high school stage arises not only from the demands of a growing industrial society, but also from the urgent necessity of reducing the number of students indiscriminately seeking admission to colleges for want of better guidance and for lack of skill and consequent unemployability at the end of the high school course.

The psychological and social barrier militating against the adoption of vocational courses which the Kothari Commission had pointed out, still persists, as it is commonly felt that vocational education is meant for the less-gifted child. It is time we realized that the training of the hand is also equally important for holistic education. It is not too late to appreciate that time has come when 3 R's should be replaced by 4 H's, namely, head, heart, hand and health. If this goal of education is adopted, it should not be difficult to agree that vocational education (in any one craft, depending upon the aptitude of the student and marketability of the skill) should be made compulsory for all high school students. Vocational education must be cleared of the stigma of being considered suitable only for the less-gifted or the other person's child. Once it loses this stigma, all other barriers shall melt away and we may yet find ourselves graduating into the realm of action from the stage of mouthing pious but pretentious sentiments !

—*G.B.K. Hooja*

Mathematics or Mathematical Sciences

J.N. Kapur*

Introduction

The questions we propose to consider are:

- —Should we have departments of Mathematics or of Mathematical Sciences or of both?
- —Should we have degrees in Mathematics or in Mathematical Sciences or in both?
- —Should we have Societies of Mathematics or of Mathematical Sciences or of both?
- —Should we have mathematicians or mathematical scientists or both?
- —Does a change from 'mathematics' to 'mathematical sciences' imply a change in name only or can it have a deeper significance for both education and research?

Some universities in the West have already changed the names of departments of mathematics to departments of mathematical sciences, some mathematicians prefer to call themselves mathematical scientists and some prestigeous committees in the USA have been called 'Committees on Mathematical Sciences', but by and large the designations 'Mathematics' and 'Mathematicians' continue to be used.

In the present article, we examine the arguments for and against this change and also discuss the reasons for this change being so slow in taking place.

Historical Perspective

This is given in Figure 1.

Till the end of the nineteenth Century, there were a large number of individuals who could both create new mathematics and who could apply existing or new mathematics to new problems of science and technology. There were also some individuals who could only do mathematics or who could only apply mathematics. All of them worked in harmony in the same department of mathematics and were all called mathematicians. As specialisation grew, the adjectives 'pure' and 'applied' began to be used for mathematicians. This continued till about 1940 when explosive developments took place in both pure and applied mathematics.

Pure Mathematics became more and more abstract and in fact the explosion in pure mathematics was caused by the forces for exiomatisation, abstraction and generalisation. At the same time applied mathematics became more and more applicable. The two disciplines began to diverge.

The divergences within each discipline also began to grow. Almost entirely new sub-disciplines like algebraic geometry, algebraic topology, differential analysis, global analysis on the one hand and magnetohydrodynamics, mathematical economics, operations research, biomathematics and computer science on the other hand, began to grow and there was pressure for accommodating all these in the mathematics departments. The Pure Mathematics group argued, "There are two disciplines viz. Mathematics and Applications of Mathematics. Since we have a department of mathematics, mathematics has to stay here and applications of mathematics can move to their respective departments of science, engineering and technology. This will reduce congestion and mathematics will have proper scope to develop". The applied mathematicians argued, "We do not appear to be welcome here and appear to be more welcome in physics and engineering departments where we have persons working on similar problems and who appreciate our skills. Either we should form our separate departments of applied mathematics or migrate to other departments."

The result was that mathematics departments became more and more pure mathematics departments. The courses became more and more abstract with the result that students of mathematics became less and less employable outside the teaching profession. Many of the user departments began to offer their own courses and there was a significant impact on the quality and quantity of enrolments in mathematics courses. Computer courses began to offer stiff competition to mathematics courses. The government grants for pure mathematics began to decline and many mathematicians had to switch to applied mathematics, numerical analysis or computer mathematics research programmes.

Mathematics departments began to advertise for positions in applied mathematics, but the applied mathematicians did not feel comfortable in departments dominated by pure mathematicians, because they were required to work more for the rigour of mathematics than for the applicability of mathematics. Mathematics departments still preferred those who used very sophisticated mathematics to solve elementary practical problems to those who used relatively less sophisticated mathematics to solve significant problems.

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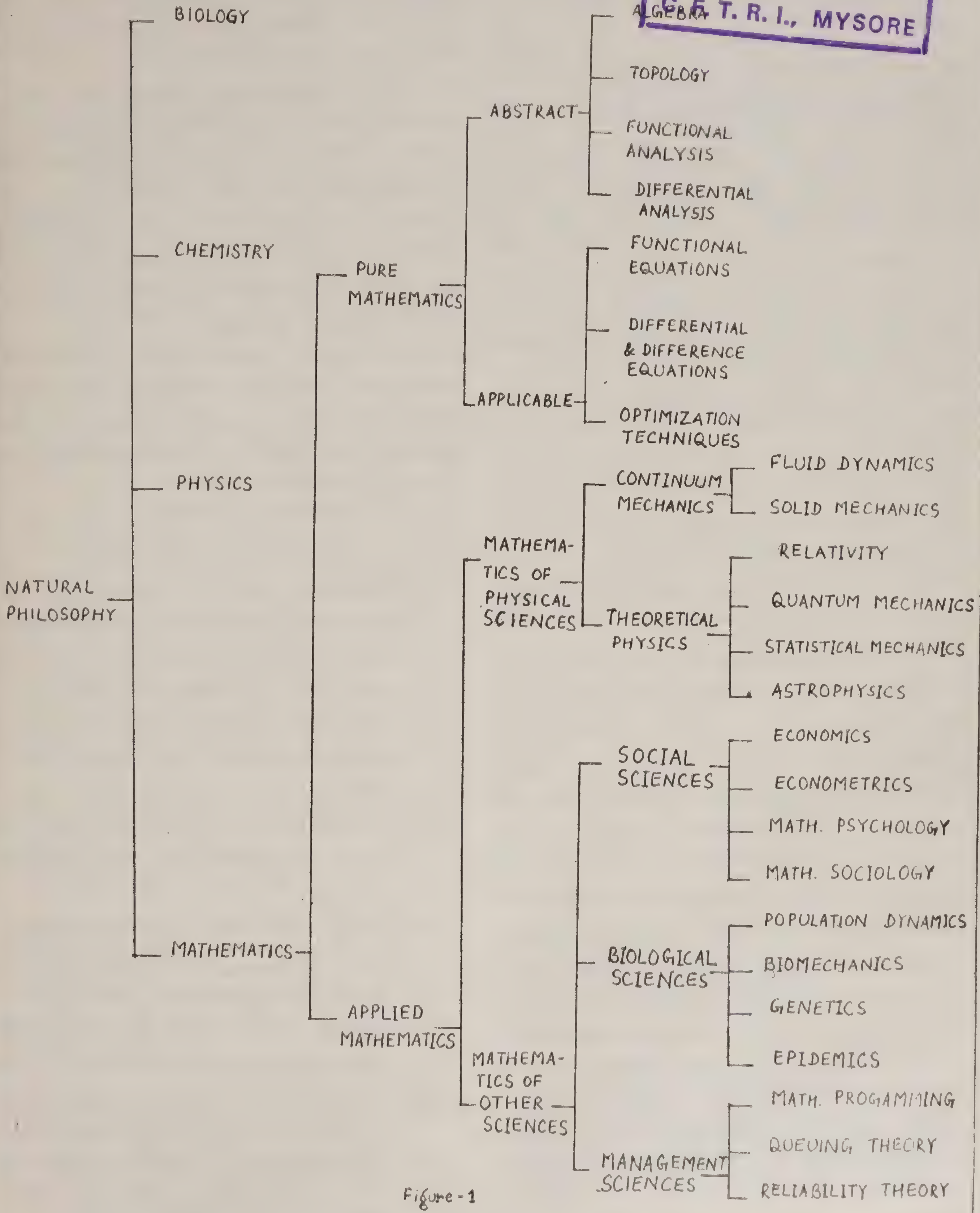
*Indian Institute of Technology,
New Delhi, 110016.

19 MAY 1987
C.F.T.R.I., MYSORE


NATURAL PHILOSOPHY
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ABSTRACT
ALGEBRA
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DIFFERENTIAL ANALYSIS
APPLICABLE
FUNCTIONAL EQUATIONS
DIFFERENTIAL & DIFFERENCE EQUATIONS
OPTIMIZATION TECHNIQUES
APPLIED MATHEMATICS
MATHEMATICS OF PHYSICAL SCIENCES
CONTINUUM MECHANICS
FLUID DYNAMICS
SOLID MECHANICS
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RELATIVITY
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SOCIAL SCIENCES
ECONOMICS
ECONOMETRICS
MATH. PSYCHOLOGY
MATH. SOCIOLOGY
BIOLOGICAL SCIENCES
POPULATION DYNAMICS
BIOMECHANICS
GENETICS
EPIDEMICS
MANAGEMENT SCIENCES
MATH. PROGAMMING
QUEUING THEORY
RELIABILITY THEORY

Figure-1

It is at this stage that the idea of the departments of mathematical sciences was mooted.

Some Implications of forming a Department of Mathematical Sciences

(1) It gives an equal status to all members of the faculty. In a department of mathematics, the pure mathematicians may try to assume primary role, since they alone do mathematics, while the others only apply mathematics. This sometimes lead to unhealthy tensions.

(2) This prevents the students from getting a one-sided view of mathematics. The courses are likely to be more balanced and give students a fairly good view of mathematical sciences i.e. of both mathematics and its applications. The students can have a much better choice of courses so that they can choose courses according to their tastes. Those who are interested in abstraction can choose abstract mathematics courses and those who are interested in applications can choose applied mathematics courses.

(3) It can prevent the division of the department into departments of algebra, topology, functional analysis, etc.

(4) It can prevent the tendency towards isolation of mathematics from other sciences.

(5) It can restore the position of Mathematics both as a queen and as handmaiden of sciences, otherwise it tends to become a queen with no domain.

(6) It enables the department to produce employable graduates and can have a healthy influence on quality and quantity of enrolments.

(7) This will also mean that the resources of the department will be spread over more areas so that the possibility of having large groups in sub-areas becomes smaller. However it is presumed that a department of mathematical sciences will be bigger than a department of mathematics since it will include all persons working in pure and applied mathematics, statistics, theoretical computer science, biomathematics, etc.

(8) It will bring to focus the experimental nature of mathematics, its quasi-empirical character and the comprehensive role of mathematical thinking in all fields of knowledge.

(9) This will imply that mathematics, instead of withdrawing into its shell, is prepared to have a healthy interaction with all fields of knowledge for its own health and for the health of other disciplines.

Some Implications of being a Mathematical Scientist

(a) A 'mathematical scientist' should be more comprehensive in his outlook than a 'mathematician'. He should appreciate both the mathematical culture of axioms, theorems, proofs, rigour, depth, precision, and elegance as well as 'scientific' culture of 'institution' 'heuristics', 'modelling', 'validating' and 'objectivity'.

(b) A mathematical scientist is not a recluse from life. On the other hand he is interested in mathematicizing every aspect of life. He is prepared to make mathematical models for new situations and he is prepared to create new mathematics to solve these new models. For him there is no dichotomy between mathematics and its applications.

(c) He may specialise in one area of pure or applied mathematics, but he is interested in all areas. He finds himself in tune with the whole history of mathematics and he sees the future of mathematics as a future filled with intellectual and physical conquests.

(d) His forte is mathematical way of thinking and his technique is mathematical way of handling problems.

(e) He considers himself in a central position from where he can go to abstractions of mathematics on the one side and to realities of physical, biological, and social sciences on the other.

(f) He knows he has the capacity to understand prime numbers and finite geometries, atoms and gallaxies, genetic code and computerised tomography, social and economic structures, space flights and computers and he rides in a plane which can take him anywhere he wants to go.

Degrees in Mathematical Sciences

We now attempt to answer the questions raised in the introduction:

(i) A university may have a department of pure mathematics, a department of applied mathematics, a department of statistics and a department of computer science. It can have even departments of combinatories, optimization, actuarial science, etc. Alternatively, it should have one department or division or faculty of mathematical sciences with different departments.

(ii) The undergraduate and postgraduate degrees should be in mathematical sciences, unless there is too heavy specialisation in one discipline when that specialisation can be indicated in the degree.

(iii) A person should use the designation 'pure mathematician', 'applied mathematician', 'statistician' or 'mathematical scientist' depending upon both his specialisation and his attitude.

(iv) Similarly societies should use appropriate designations. Societies which want to cater to all matematical sciences should be called societies of mathematical sciences.

(v) The word 'Mathematics' has a 3000 years old history and traditions behind it and so in spite of misuse and confusion, there is certain resistance to changing it. ▣

COMMERCE EDUCATION

Genesis & Focus

S. D. Tripathi*

Since independence, India has made rapid progress in industrial and commerial fields, which is bound to acquire momentum as 21st Century approaches. In the wake of technological acceleration and social change, industrialisation and its necessary concommitants like growth of large scale enterprise, rise of new industrial aristocracy and managerial hierarchy, increased urbanisation, spread of industrial civilization and dynamic organisation culture have thrown serious social, economic and political challenges before the country. Like other advanced countries of the world, India is increasingly on the threshold of professionalisation of management, a phenomenon, which has been rightly characterised by some as 'Managerial Revolution'. In the context of expansion and rapid modernisation of the industrial-cum-social structure, the complexities of modern business resulting in the growing size of investment units, increasing automation and a more sophisticated accounting system have inevitably led to the multiplicity of problems in business, and, therefore to the need of highly trained professionals at all levels. One of the recent and marked features in the educational pattern of the developing economies in particular, and advanced countries in general, is the growing attention to business education at the school, university and professional levels. An example is our own country, where the enrolment in commerce undergraduate and postgraduate courses has increased about 10 times during the last two decades. In the two-fold task of meeting and growing need of managerial personnel and in projecting realistic, flexible and acceptable solutions to the business problems, the role of Colleges and Universities imparting commerce education is obviously crucial and significant.

Since the primary objective of commerce education is to prepare students for personally fruitful and socially useful careers in business and related type of activities, teaching of commerce should always keep in view the expectations of the business world—the ultimate buyer of the product. The business world needs educated men, who have breadth, perspective and flexibility of mind to cope with a business environment that grows in complexity and changes with bewildering rapidity. It also feels the pressure for more and better trained specialists, who can master the technical problems, that have currently sprung up due to the technological and organisational revolution of the 20th century. Business looks towards commerce institutions to give it generalists and specialists, if possible embodied in the same person.

The controversy as to the liberal or vocational nature of the commerce education has been drawing the attention of experts for a long time. Education in Arts or Science is primarily liberal and intended more to cultivate a certain quality of mind and attitude of life, rather than to prepare one for specific functions related to work and living. Commerce, as a university discipline, like Arts and Science, must fulfil the broad liberal requirements of university education, viz., intellectual passion, intellectual thoroughness, intellectual humility, intellectual balance and intellectual integrity. Commerce education, on the one hand, should lead to the cultivation of mind, develop the capacity of analysis and exposition, and a sense of perspective and proportion, impart a sense of social responsibility and lead to a sense of duty and functional integrity. On the other hand, such an education must necessarily be vocational in character as it specifically equips the graduates for employment in commerce and industry; aims at developing personality traits and acquiring specialised types of knowledge; and trains in the art of handling people and the power of communication. In this way, commerce education has to synthesise between liberal and vocational aspects, if it has to meet the expectations and needs of the business community.

Viewed in the perspective of higher business expectations and the tremendous opportunities open to the commerce graduates, the present position of commerce education is far from satisfactory in our country. The observations of Special Committee on Commerce Education (VKRV Rao Committee, 1961) are still equally valid:

> "Standards of university education have, in general, undergone considerable deterioration in recent years. . . . .Commerce courses have suffered still more by overloading of Syllabuses. . . Both teachers and students are paying more attention to

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Department of Commerce & Business Management, Panjab University, Chandigarh.

> memory training than intelligent understanding and logical analysis. . . . There is all round complaint of deterioration of standards, of growing lack of command over English language, and of bookish knowledge, lacking a practical bias. . . There is a great need for a far-reaching and almost revolutionary change in the context of courses and the methods of imparting the content.”

A similar view expressed by Gordon and Howell about the position of collegiate business education in USA also deserves our serious consideration:

> “Today it is a restless and uncertain giant in the halls of higher education, gnawed by doubt and harassed by the barbs of unfriendly critics. . . . It involves considerably more male students than either engineering or the natural sciences and mathematics combined. . . . It seeks to serve several masters and is assured by its critics that it serves none well. The business world takes its students, but deprecates the value of its training. . . . It is aware of its ungainly size and views apprehensively the prospect of still further growth, knowing that even now it lacks the resources to teach well the horde of students, who come swarming in search of practical education. . .. The more thoughtful and alert (teachers) ask the question and debate the issue of improving the situation. The others plod in the rut they dug long ago. For them it is enough to tell their students, what business did yesterday and the day before”. (Gordon & Howell—*Higher Education in Business*).

Improvement of commerce education is not only a function of appropriate syllabus and calibre of students, but also of the teaching methods and the teaching faculty. Whereas the Syllabus and Courses of Study should take into consideration the contemporary needs of society in general and business in particular, it should be appreciated fully that imported knowledge is of little use until somehow it has been built into the experience of the recipient, so that he not only possesses knowledge, but is also able to make use of it. Writing in the Harvard Alumni Bulletin, Charles Gragg gave the following limerick as a sad example of this:

“A student of Business with Tact,
Absorbed many answers, he lacked,
But acquiring a job,
He said with a sob,
How does one fit answer to fact?”

If commerce education is to be fruitful and wastage is to be reduced, the admissions to the commerce courses both at the degree and postgraduate levels have to be highly selective and rigorous. The technical and professional bias of the B. Com course and its diversified nature, ranging from quantitative areas like Mathematics, Statistics and Accountancy to analytical courses like Economics, Management and Law, presuppose a certain level of intelligence and ability in a student, without which the development of qualities of leadership, initiative and decision-making cannot be accomplished. Again, with a view to blooming the all-round personality of a commerce graduate, commerce educators must adopt the latest teaching methods and techniques of analysis, prevalent in advanced countries like USA and UK. This implies a more effective and meaningful tutorial system, use of Cases as illustrations of actual business situations, more essay work, heavy reliance on library assignments, seminars, discussions and group meetings and group sessions, supplemented by projects,

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work visits, film shows and programmed learning techniques, access to computer systems, and lesser reliance on the prosaic lecture method.

Teaching is a noble profession and the teacher is the chief catalytic agent of a socio-cultural transformation. His value to the society is based not only on his intellectual attainments, but also, and more so, on his intellectual capacity to inculcate among his pupils a proper Code of Conduct, a spirit of service and courage to fight for a right cause with grace and dignity and with ethical fervour. Teaching in commerce has been suffering from a creeping obsolescence, which manifests itself in its emphasis on descriptive details, in the lack of a stimulating intellectual absorption, in too narrow an approach to the subject matter, in unfamiliarity with latest analytical tools and in scanty significant and purposeful research.

What should be the balance of teaching and research is a moot question, often debated in the academic circles. Ideally, all teachers should also be research workers, so that the spirit of their research, its enthusiasm and its eager inspiration spills over in their teaching. Inevitably, some teachers will have greater gifts of research than others; some will have greater gifts of exposition; and some again will be gifted to teach small groups by Socratic method of discussion; but for all, in some measure teaching and research must be combined.

In a modern society where knowledge increases at a terrific pace and social change is very rapid, a radical transformation in the educational system is called for. Education in general and commerce education in particular, is no more taken as concerned primarily with the imparting of knowledge or the preparation of a finished product, but with the awakening of curiosity, the development of proper interests, attitudes and values and the building up of essential skills such as independent study and capacity to think, learn and act.

Visualising the role of the university and other centres of higher education in the future technetronic society (society based on technology and electronics), Prof. Zbigniew Brezinski of Columbia University observed:

> "The University in an industrial society is an aloof ivory tower, the repository of often irrelevant, even if respected wisdom, and the watering fountain for budding members of the established social elites. In the technetronic society, the University becomes an intensely involved think tank, the source of much sustained political planning and social innovation."

Are Indian Universities planning to face the Challenge? □

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R(IA)195--1/86 REGISTRAR
Dated : 16th April 1987

Centre for Electronics Design & Technology

AURANGABAD

(Institutions Under Govt. of India, Department of Electronics)

Advt. No. 2/87 CEDT (AGD)

The Government of India has set-up Centre for Electronics Design and Technology, as Registered Society in Aurangabad. The CEDT at Aurangabad is set-up in collaboration with the State Government of Maharashtra and the Marathwada University. The CEDT would cater to the training, design and product development needs of the Electronics Industry. CEDT, Aurangabad is looking for dynamic persons with teaching and design abilities for various faculty positions. The number of various posts are tentative.

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The Meaning of Secularism

Shri G. Parthasarathi, former Vice-Chancellor of Jawaharlal Nehru University, delivered the Convocation Address at the second convocation of the University of Hyderabad. In a scintillating address, Shri Parthasarathi described the story of our secularism and suggested that a course on the development of human values be included in the core curriculum envisaged under the New Education Policy. Excerpts :

Convocation

Even within the cloisters of the University you must have heard, from time to time, the rumble of life outside. You will have sensed the stresses and strains of an ancient country that became independent relatively recently, burdened by poverty and inequalities, trying to achieve economic growth and social transformation. It is true that there are a hundred other countries which, like India, became independent after the Second World War and are engaged in a similar effort to achieve quickly the progress that was denied to them during the centuries of colonial domination. But there are very few countries that are trying, as we are, to modernise and develop within the framework of democracy with constitutionally guaranteed political rights for all citizens equally, and with freedom of belief, expression and organisation. Among the countries striving for development through democratic means, there is none with a population as large as ours and as diverse in terms of language, religion and levels of development.

The leaders of India's struggle for independence, foremost among them Mahatma Gandhi and Jawaharlal Nehru, were convinced that unity could be preserved amidst this diversity only on the basis of equality. Both stood for an equitable and humane social order. They envisaged free India as a secular State identified with no single religion but hospitable to all religions without discrimination, and affording all citizens the same political rights irrespective of their professing this religious faith or that, or none. It is true that the expression 'Secular State' had not come into vogue in the early decades of the century when the struggle for freedom began to be waged. But what we now means by that phrase is no different from the vision that animated Gandhiji and Jawaharlal Nehru. They were both impelled by a humanism that was profound and radical, though they expressed it in different vocabulary and idiom.

Gandhiji was a deeply religious person who regarded all his public activity — from the social crusade against untouchability to the mobilisation of the masses for political independence — as part of the practice of religion. There was no room in religion, as he conceived it, for superstition or fanaticism, inequality or exploitation. Like other truly religious persons, he acknowledged all humankind as children of God. In this he was in the tradition of the Bhakti and Sufi saints of India. One of them, Kabir — who was claimed on his death in 1518 both by Hindus and Muslims — has said: "Hari is the East; Allah is in the West. Look within your heart, for there you will find both Karim and Ram. All the men and women of the world are His living forms". Four centuries later Gandhiji invoked this syncretist Bhakti-Sufi strain in the Indian ethos when he popularised the verse: "Ishwar and Allah are both Your names. Grant every one good mind." Gandhiji wrote in 1928: "After long study and experience I have come to these conclusions: (i) that all religions are true; (ii) all religions have some error in them; and (iii) all religions are almost as dear to me as my own Hinduism. My veneration for other faiths is the same as for my own faith. Consequently the thought of conversion is impossible." He wanted Hindus to be good Hindus, Muslims to be good Muslims, Christians to be good Christians, and Sikhs to be good Sikhs. He said of Indian culture: "It is neither Hindu, Islamic nor any other, wholly. It is a fusion of all".

Gandhiji employed Hindu cultural idiom when he spoke of Rama Rajya to describe the just society, and called for service of Daridranarayana, or God in the form of the poor and the deprived. But the India of his dreams was the same as what some of us would describe, in non-religious terms, as a secular, democratic and socialist republic. He visualised "an India in which the poorest shall feel it is their country, in whose making they have an effective voice, an India in which there shall be no high class and low class of people, an India in which all communities shall live in perfect harmony. There can be no room in such an India for the curse of untouchability. Women will enjoy the same rights as men. This is the India of my dreams."

Jawaharlal Nehru was not a religious person in the traditional sense; indeed he was opposed to the meaningless ceremonial and superstition that have grown in the name of religion. He spoke in terms of socialism, not Ram Rajya, and of abolishing exploitation and poverty. He denounced the association, frequently come across in history, of the religious establishment in a country associating itself with and sanctioning exploitation and inequality at home, and imperialism abroad. But Jawaharlal Nehru acknowledged the fact that the lives of many among the world's supremely good men and women have been inspired by religion. He quotes in his autobiography a passage from Romain Rolland in which the French savant speaks of "many souls who are, or who believe they are, free from all religious beliefs, but who in reality live immersed in a state of super-rational consciousness which they term Socialism, Communism, Humanitarianism, Nationalism and even Rationalism. It is the quality of thought and not its object which determines its sources and allows us to decide whether or not it emanates from religion. Scepticism itself when it proceeds from vigorous natures, true to the core, joins in the march of the Grand Army of the religious Soul." Jawaharlal Nehru remarked on this: "I cannot presume to fulfil the conditions laid down by Romain Rolland but on these terms I am prepared to be a humble camp-follower of the Grand Army."

Jawaharlal Nehru's concept of secularism was comprehensive. He wrote in 1956: "We call our state a secular one. The word 'secular' perhaps is not a very happy one. And yet, for want of a better, we have used it. What exactly does it mean? It does not obviously mean a state where religion as such is discouraged. It means freedom of religion and conscience, including freedom for those who may have no religion. The word 'secular', however, conveys something much more to me, although that might not be its dictionary meaning. It conveys the idea of social and political equality. Thus, a caste-ridden society is not properly secular."

Nehru saw with equal clarity the

From R to L : Mr. G. Parthasarathi, former VC, JNU, Ms. Kumudben Joshi, Governor of Andhra Pradesh, Mr Justice M. Hidayatullah, Chancellor, and Prof Bh. Krishnamurti, Vice-Chancellor, at the Second Convocation of the University.

great uses, and therefore the indispensability, of science for abolishing poverty and achieving material progress. But he also pointed out the limitations of science. He wrote in *The Discovery of India*: "Science does not tell us much or, for the matter of that anything, about the purpose of life." In the course of the first Maulana Azad Memorial Lecture in 1959, he said: "Let us then pursue our path to industrial progress with all our strength and vigour and, at the same time, remember that material riches without toleration and compassion and wisdom may well turn to dust and ashes". Jawaharlal Nehru believed that democracy and socialism, far from being antithetical, were mutually reinforcing. He placed great value on the non-violent approach, which coincided with the democratic approach of seeking progress through consent: "An appeal to violence is particularly dangerous because of its inherent destructive character. The basic thing, I believe, is that wrong means will not lead to right results. And that is no longer merely an ethical doctrine, but a practical proposition."

Jawaharlal Nehru was very conscious of the fact that the vertical divisions of religion, language, caste and the like hide the horizontal division between the privileged few and the disadvantaged many. He knew also that in the competition for jobs and other economic opportunities between educated and upper classes within each vertical group, these calsses mobilised mass support by invoking solidarity in the name of religion or other narrow collectivities. Jawaharlal Nehru hoped that unity between the common people of different religions could be forged by mobilising them on issues of economic justice and social reform alongside the struggle for political independence.

That was not to be. The partition of the sub-continent in 1947 was a shattering blow to the endeavour of Gandhiji and Jawaharlal Nehru to preserve unity amidst diversity on the basis of equality. It marked the triumph of the British imperialist policy of dividing Indian from Indian in order to weaken the nationalist movement. A major consequence of this was what Professor Humayun Kabir described as "the fragmentation of consciousness" of the Indian people. British policy fomented sectarian and regional feelings and discouraged the recognition and acceptance of "the total heritage of India".

Following independence, however, the Constituent Assembly reasserted the Indian ethos of unity in diversity while framing the Constitution which came into force on 26th January 1950. Our national charter made India a fully democratic, and therefore necessarily secular, Republic. The addition of the adjectives 'socialist' and 'secular' in the Preamble to the Constitution, through an amendment adopted in 1976, did not introduced new principles, it only served to make explicit the ideals of India's polity. The late Shri Chagla who was not only an eminent jurist but in his way of living the most secular of individuals, never tired of pointing out that secularism implies equality of all citizens in every sense, before the law, and of opportunity. But basically, it is more than a legal concept. It is an attitude, a mental approach, the acceptance that every human being is as good as another.

For free India there was to be no resting on the laurels of the republican Constitution. The acerbity and tensions which accompanied the reorganization of the States on a linguistic basis in the mid-fifties showed that language could be almost as divisive as relgion. The national movement had stood for the full development and self-expression of the great linguistic regions of India, but it was opposed to narrowness and chauvinism of any kind. Other warning signals have been the disputes between States on the sharing of river waters; the continuing outbreaks of communal tensions at different places from time to time; the eruption of controversies on the issue of job reservations for backward castes. Most serious of all is the tragic course of events of recent times in Punjab, where ecclesiastical authority has proceeded beyond its proper domain to interfere in the political processes of democratic government. The Punjab developments underline the need for all democratic and secular forces to stand united against the attempt by a small section, abetted by inimical external forces, to incite subversion and secession in the name of religion.

We have to recognise that though nearly forty years have passed since we achieved political independence, there is a continuing need to strengthen national consciousness. It should be among the major objectives of education in India to contribute to this strengthening and to promote awareness of the total Indian heritage — be it of natural resources like water or oil, of the mosaic of our culture which has been shaped by the interaction of diverse elements.

Education is more than the imparting of knowledge in different disciplines. The higher aim should be education for citizenship and education for living. May I, on this occasion of the Convocation of the University of Hyderabad, which is itself, as a Central University, a product and a symbol of supraregional consciousness, offer some suggestions for making the structure of formal education contribute to

(*Continued on page 19*)

Central Educational Tribunal

The Association of Indian Universities (AIU) organised a Panel Discussion on the Law Commission's proposal to set up a Central Educational Tribunal (CET) on 2nd May, 1987. The Panel Discussion followed a two-day Group Discussion on Modernising University Administration organised by AIU for Vice-Chancellors of Indian Universities on 30 April—1 May, 1987. This ensured a good assembly of the Vice-Chancellors to deliberate on the proposed CET. Amongst the panelists were Justice D.A. Desai, Chairman, Law Commission of India ; Prof. G. Ram Reddy, President, AIU and Vice-Chancellor, Indira Gandhi National Open University ; Mrs. V.S. Rama Devi, Secretary, Law Commission of India ; Prof. Moonis Raza, Vice-Chancellor, University of Delhi ; Prof. S.K. Agrawala, Vice-Chancellor, Agra University ; Prof. Rais Ahmad, former Vice-Chairman, University Grants Commission; Prof. M.V. Mathur, former Vice-Chancellor, University of Rajasthan; and Shri G.B.K. Hooja, former Vice-Chancellor, Gurukula Kangri Vishwavidyalaya.

The Law Commission had earlier circulated in March 1987 a working paper on 'Decentralisation of Administration of Justice : Disputes Involving Centres of Higher Education' wherein it was proposed to set up a CET for resolving disputes of specialized nature involving government, universities, teachers in universities and colleges and students etc. Salient portions of this working paper were published in University News in its Issue of 23rd March, 1987. The deliberations in the Panel Discussion were confined to the following 9 points which had formed the questionnaire with the working paper.

(i) Should there be a Central Educational Tribunal to deal with causes, controversies and disputes involving concerned Government, universities, professors in the universities and affiliated colleges and students, with comprehensive jurisdiction to deal with disputes involving the aforesaid parties ?

Some of the panelists at the discussion

(ii) Would such a tribunal provide an all-India perspective to educational problems which today it sadly lacks in view of the fact that education has more or less remained a State subject even after the amendment of Entry 25 in the Concurrent List ?

(iii) What ought to be the composition of such a tribunal ? Should it include educationists, Vice-Chancellors, present and former, Government servants who have dealt with problems of education, lawyers and judges who have worked at the High Court level and even social activists ?

(iv) Would it be conducive to improving administration of universities if the jurisdiction of the High Courts to deal with such disputes is abolished ?

(v) Would decentralisation of administration of justice brought about by establishing such a tribunal achieve the desired result of expeditious disposal of such disputes so as not to render university administration stagnant ?

(vi) Would such a tribunal help in reducing the area of conflict between the State Government and the university in the matter of appointment of Vice-Chancellors, affiliation of colleges, internal autonomy and financial autonomy ?

(vii) Would such a tribunal help in introducing undisturbed atmosphere in universities for pursuit of excellence ?

(viii) Keeping in view the fact that all sorts of corrupt influences have reduced the credibility of examination system, would such a tribunal help in restoring credibility?

(ix) Would the tribunal help in resolving disputes about admission to professional colleges which is a recurring phenomenon ?

AIU had compiled and circulated a paper listing responses to these questions to generate discussion on the subject.

Prof. Moonis Raza, VC, Delhi University, speaking at the panel discussion. On his left is Prof. S.K. Agrawala, VC, Agra University.

There was an overwhelming consensus in favour of the proposal to set up a CET. However, everybody was agreed that the CET should not be seen as a panacea for all the ills afflicting the university system. It was emphasised that all remedies provided under the University Acts should be exhausted before the matter was taken to the CET. As regards the jurisdiction of the CET, participants were unanimous that all cases going to the High Court could come under the jurisdiction of the CET. It was suggested that in addition to a Central Tribunal at the national level, it should also have regional benches. Larger States like Uttar Pradesh could qualify for a regional bench but in case of smaller States, two to three states could be clubbed to form a region qualifying for a bench. It was pointed out that the membership of the Tribunal should not be on the basis of regional representation but only outstanding men of calibre, integrity and a national outlook be appointed to the Tribunal. It was suggested that professional education interests like those from medical education and engineering education should also be represented on the Tribunal. It was desired that if feasible a time limit could also be proposed for disposal of a case by the CET. The proposal to set up the CET was particularly welcomed because of the distinct nature and culture of the university system that required discipline with dissent. It was hoped that the CET will not only protect but also promote university autonomy.

The participants suggested that the AIU should set up a Working Group to assist the Law Commission in giving a concrete shape to the proposal. It was also recommended that the AIU should collect data of cases of different universities and colleges now pending with different courts in the country to help the Law Commission have a fair estimate of the quantum of cases involved. The recommendation was accepted by the AIU.

The recommendations of the Panel Discussion will be remitted to the Law Commission of India for its consideration. ☐

CENTRAL INSTITUTE OF INDIAN LANGUAGES
(Ministry of Human Resource Development, Govt. of India)
MANASAGANGOTRI, MYSORE - 6
CONTACT-CUM CORRESPONDENCE COURSE
IN TAMIL AND BENGALI FOR
MIDDLE AND HIGH SCHOOL TEACHERS

Applications are invited from Middle and High School Graduate Teachers whose mothertongue is not Tamil and Bengali, through their DDPI's/DEOs/Inspector of Schools, for undergoing Contact-Cum-Correspondence Course in Tamil and Bengali to be commenced from 2nd half of June, 1987, by the Southern Regional Language Centre, Mysore and Eastern Regional Language Centre, Bhubaneswar respectively. The course is spread over 24 months including 2½ months of personal contact programme split into 3 spells in 3 summers. During the contact programme, the teachers shall be paid TA/DA as per Institute's rules and during the period of course an allowance of Rs.30/- per month shall be paid to the teachers as postal allowance towards the end of each term of correspondence. After completion of the training, the teachers would be eligible for a cash allowance of Rs.70/- per month, if they teach the language in the schools as per rules framed for the purpose. Applications may be sent to the Principal, Southern Regional Language Centre, Manasagangotri, Mysore - 570 006 for Tamil and Eastern Regional Language Centre, Bhubaneswar - 6 for Bengali.

Application forms can be had from the Centre concerned. Filled in applications shall be received by the Principals of the concerned Regional Language Centres upto 31.5.1987.

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CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
May 19-21, 1987	XVIII Indian Sociological Conference	Theme: Sociology and Social Transformation in India.	Department of Sociology, North-Eastern Hill University, Shillong.	Prof. M.N. Karna, Organising Secretary, XVIII Indian Sociological Conference, Deptt. of Sociology, NEHU, Shillong-793014.
June 1-15, 1987	Course on Computer Applications in Social Sciences	To expose the participants to fundamentals of computer, computer processing, FORTRAN Language and foundation of data processing and quantification methods.	Centre for Social Studies, Surat.	The Course Director, Centre for Social Studies, South Gujarat University Campus, Surat - 395 007.
June 1-30, 1987	Summer School in Plasma Physics	To give broad exposure of plasma physics to the students of M.Sc. in Physics and fresh research scholars	Department of Physics, Ravishankar University, Raipur (M.P.)	Dr. S. Guha, Convener, Dept. of Physics, Ravishankar University, Raipur (M.P.)
July 3-4, 1987	National Symposium on Development of India's Mineral & Fuel Resources	To discuss the entire spectrum of mineral sector—metallic and non-metallic minerals, coal, ground water, oil and natural gas.	Department of Applied Geology, Indian School of Mines, Dhanbad.	Prof. K.L. Rai, Convenor, Diamond Jubilee National Symposium, Department of Applied Geology, Indian School of Mines, Dhanbad - 826004.
July 6-8 1987	National Symposium on Past, Present & Future of Bhopal Lakes	To provide an intredisciplinary forum for evolving suitable strategy for the maximum utilization and conservation of Bhopal Lakes.	Dept. of Zoology, Govt. Motilal Vigyan Adarsh Mahavidyalaya, Bhopal.	Prof. S.K. Kulshrestha, Director, MAPCOST Seminar, Dept.of Zoology, M.V.M. Bhopal - 462 008
July 22-24, 1987	15th National Conference on Fluid Mechanics and Fluid Power	To bring together researchers and designers, working in diverse fields like Mechanical, Civil, Power, Aeronautical and Chemical Engg. besides Mathematics and Physics to review the state of the art and the recent developments.	Regional Engineering College, Srinagar in collaboration with National Society of Fluid Mechanics and Fluid Power.	Dr. A.M. Bhat, Organising Secretary, 15th National Conference on Fluid Mechanics and Fluid Power, Department of Mechanical Engineering, Regional Engineering College, Srinagar 190 006.
November 16-20, 1987	Seventh National Symposium on Radiation Physics	To provide a forum for a collective discussion and identification of the emerging new directions in the field of Radiation Physics	Department of Physics, Mangalore University in collaboration with the Indian Society for Radiation Physics	Dr. N. Lingappa, Convener, Programme Committee, NSRP-7 and Head, Department of Physics, Mangalore University, Mangalore.
November 26-28, 1987	**International Seminar on Instrumental Methods of Electro-Analytical Techniques.**	**To provide a forum to research workers and practitioners for exchange of information and technical perceptions in instrumental methods of electroanalysis.**	**Indian Institute of Science, Bangalore.**	**Prof. M.H. Dhananjaya Principal and Chairman o the Organising Committee, S.J. College of Engg., Mysore.**

Fibre Optic Communication

Researchers at the Indian Institute of Technology, Madras have developed for the country's battle tanks a fibre optic communication, which is free from an interferenace, including atomic radiation and is perfectly reliable. According to Prof. JP Raina, who led the research team, the system had been successfully field tested at the combat vehicles research and development establishment. A few more field models of the system would be made for futther testing by the public sector, Bharat Electronics Limited before commercial production is started, he said.

Once the system was incorporated, Indian battle tanks would be the first to have the fibre optic communication system which will have special features of transmitting signals through optical fibre to various locations in the tank and will also provide optical rotary connections between the main hull of the tank and the driver at the back, he said.

Fibre optics is a communication system which uses light signals for transmission of information through dielectric media like gas which is immune to any interference and therefore perfectly reliable. It has advantages of transfer of very wide band information and is extremely light weight, Prof. Raina explained.

Prof. Raina said the system developed uses digital mode of transmission and could subsequently be interfaced with other tanks signals like the control signals and computer-to-computer comunication. The voice signal from the microphone is sampled and coded and sent in a specified time slot to various locations in the tanks through the fibre optic linked to a master switching unit. Here, the microprocessor was built-in intelligence to achieve the specified switching function so as to achieve the required interconnectivity. The signals are recieved from the master switching unit through the fibre optic link and decoded appropriately and fed to the headphone.

IIT Madras is one of the four institutions entrusted with the task of developing fibre optic communication systems after the department of electronics set up a special group called fibre optic systems applicacations promotion programme (FOSAPP). The other institutions in the area are IIT Kharagpur, Electronics Corporation of India Limited and Instrumentation Limited, Kota.

More Powers for Medical Council

The Union Government proposes to introduce in Parliament during the current session a Bill to give more powers to the Indian Medical Council to check the mushroom growth of substandard medical colleges with some of them charging huge amount of capitation fee and admitting students on considerations other than merit.

Among other things the Bill provides for prior approval of the Medical Council of India and the Central Government for opening of a new medical college or any postgraduate course or augmentation or the admission capacity.

The Medical Council is proposed to be empowered to specify the scales of fee to be collected by medical colleges after consultation with the Centre. No medical college will be allowed to accept directly or indirectly any payment or donation of gift from any student—Indian or foreign for admission.

The Council will submit to the Central Government a list of medical colleges which in its opinion provide for minimum standards of medical education for gazette publication. If any college ceases to provide the specified standards, it would be ommitted from the list.

The Bill provides that no medical college shall admit any foreign student except under and in accordance with the rules made by the Centre.

Broadly the tasks being assigned to the Medical Council will be to control, regulate, co-ordinate, establish and maintain standards of medical education at all levels, to advice the Central Government in matters relating to the requirements of manpower in the field of medicine and to undertake periodic review of undergraudate and postgraduate education.

Summer Vacation Literacy Programme

The Ministry of Human Resource Development (Department of Education), in collaboration with the Department of Sports and Youth Affairs and the University Grants Commission, had launched a summer vacation literacy programme on 1st May, 1986, with involvement of NSS and non-NSS students all over the country. According to information received so far, in all 92 Universities and 2,126 colleges had participated in the mass programme with involvement of nearly 1,39,031 NSS and 18,016 non-NSS student volunteers and about 2,84,055 learners had been enrolled in the programme. No honorarium was paid to the student-volunteers as the programme was based on voluntarism. However, literacy kits were provided to the learners free of cost by the State Resource Centres who had also organised training of master trainers.

Keeping the encouraging response and also the policy parameters enshrined in the National Policy of Education regarding involvement of students in the National Programme of Adult Education (NPAE), the Government has decided to continue the summer vacation literacy programme during 1987-88. Like last year, arrangments for supply of literacy kits and training of NSS volunteers are being undertaken by the Department of Education before the start of summer vacation. It is expected that nearly 35% NSS students out of their total strength are expected to participate in this year's programme. It has also been clearly stated that it should be ensured that the learners selected are illiterate and have not been covered under the programme earlier.

PG Course in Film Studies

The Jadavpur University proposes to introduce a course in film studies at the postgraduate level from the next academic session. This will be the first university in the country to introduce such a course. A proposal to this effect is being examined by a committee constituted by the University Grants Commission (UGC). The committee which visted Calcutta recently discussed various issues connected with the course with the Vice-Chancellor, Dr. Sankar Sen and noted film directors Satyajit Ray and Mrinal Sen.

Tashkent Varsity to Introduce Sanskrit

USSR's Tashkent State University has introduced study of Sanskrit in the curriculum for Indologists. It will be taught by a young researcher, Indira Gaziveva, who has done extensive research on Sanskrit and its links with Hindi. According to Ms. Gaziveva, the study of Sanskrit would enable the people of Uzbekistan to know about the many-century old Indian culture.

IGNOU Study Centre

A Study Centre of IGNOU has been formally inaugurated at the Manipur University, Imphal. According to Vice-Chancellor of the university, Prof. K.J. Mahale, the Centre would cater to the needs of the 'market for knowledge' and help create talent, ability and efficiency in the State and society.

News from Agril. Varsities

Borlaug Visits HAU

Dr Norman Borlaug, the Nobel Laureate, visited the Haryana Agricultural University (HAU) recently. During his one-day visit, he was taken round the various research farms of the university including the central state seed farm.

In his discussion with the Vice-Chancellor, Mr. L.D. Kataria and other faculty members, Dr. Borlaug stressed the need for developing new crop rotation and the importance of chemical weed control. He also stressed that the workload of researchers should be reduced and quality component increased.

A researcher, the wheat scientist said, should take limited number of experiments and do them most thoroughly and record data meticulously rather than do several experiments and end up with poor data. He said to get better yields, input management, mainly for small farmers, should be made compulsory and proper balanced nutrition for crops was also necessary.

Dr. Borlaug said, "we must not make a difference in a variety on the basis of colour. The varieties should be bred for higher yield potential irrespective of the colour of grain. This is all the more important beacuase now we have a lot of processing facilities for bread biscuits and other processed foods."

Kharif Oilseeds Workshop

The Punjabrao Krishi Vidyapeeth organised the XXXth Annual Kharif Oilseeds Workshop at Akola. Inaugurating the workship, Dr. V.M. Rao, Special Secretary to the Government of India & Director, Technical Mission Oilseed, said that every effort should be made to attain self sufficiency in the production of oilseeds to meet the needs of the nation and as far as possible to export edible oil to the foreign countries also. Dr. Rao stressed that the oilseeds mission should be popularised as the public mission, where the involvement of farmers and the scientists was earnestly needed to make the mission a success. Taking note of the present discontent amongst the farmers, he pointed out that the farmers are the backbone for the success of the mission and unless they get remunerative prices, they would not grow oilseeds. He, therefore, opined that it was necessary to consider the interest of the farming community on priority and suggested that the prices should be announced twice in a year in advance in the month of August and March to encourage the farmers to take to oilseeds crops.

Dr. Rao observed that no proper attention was given to the rainfed oilseed crops, and unless the rainfed varieties of the crops are developed, it would not be possible for us to attain our goal. Efforts should therefore, be channelised to exploit all possible resources to develop rainfed varieties. For this purpose, mass demonstrations of technology and varieties be arranged on a large scale. To popularise cultivation of oilseeds, these crops should also be taken up in non-traditional regions of the country. The saline tracks should also be brought under cultivation of oilseeds crops.

Prof. H.B. Ulemale, Vice-Chancellor of the Vidyapeeth in his presidential address said that the cotton crop should be recognised as an oilseed crop instead of only the fibre crop. Considering the large amount of rainfed land in the country under cultivation, Prof. Ulemale said that efforts should be made on war footing to evolve technology and varieties of oilseeds befitting the area and agro-climatic conditions of the region with stress on production of local oilseed crops.

Mini Hen Maxi Chicken

Breeding broiler chicken for meat production has been practised using normal bodied parents which produce offsprings weighing 2.0 Kg. at 8-week of age with feed conversion ratio of 2.3 Kg. feed/Kg broiler weight. This attainment has been considered outstanding growth phenomenon in chicken meat industry. However it has given rise to problems associated with heavy weight parent stocks which needs more feed, space and produce less number of saleable chicks per hen.

Poultry breeders felt the need to reduce size of parents either by selective breeding or by using specific gene as dwarfism. The use of dwarf gene in meat type parent stock had been under study operation in Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV), Jabalpur.

Dr. A.G. Khan, University Prof. & Head of the Department of Poultry Science while explaining the details of achievement said that this is first time in India that breeding strategy using dwarfing gene in broiler-breeder-dam was successfully demonstrated. In this technique mini hens are mated with normal bodied cocks which produce maxi-normal bodied progenies.

In the 9th random sample broiler test conducted by Ministry of Agriculture, Government of India at Bombay (1986-87), the commercial meat type chick from dwarf hen ranked 1st in seven-week body weight (1.554 Kg.) out of the 9 entries participating from international firms. The chick weighed 1.925 Kg. at 8-week (ranked 2nd best) with highest dressing percentage and economics of production of 1 Kg. chicken meat.

The Director of Research Services, JNKVV, explained that the smaller size of dwarf-breeder hen will increase 30% housing density, save 25% feed cost and have added advantage of better fertility. The development of dwarf hen line will economise production cost of day-old chick and thus farmers may get chicks at cheaper rate. The project was undertaken with the financial assistance of the ICAR.

AIU News

Inter-University Youth Festivals 1987-88

> **"If I were to look over the whole world to find out the country most richly endowed with all the culture, wealth, power and beauty that nature can bestow; in some part of paradise on earth—I should point to INDIA".**
>
> —*Max Muller*

Culturally India is undoubtedly the world's richest country. To project this hidden treasure the Association of Indian Universities (AIU) launched Inter-University, Youth Festivals, as an annual feature, in the year 1985 to coincide with the International Youth Year (IYY). This set a new cultural order that helped foster dynamism in youth to contribute constructively to the achievement of national goals.

In the first stage, four Zonal Youth Festivals are proposed to be organised in which universities in that zone would be invited to participate. Grouping of universities in the four zones has been revised for better distribution of universities in the four zones. New zone-wise lists have been sent to the universities. As in earlier years, selected participants from each zone will be invited to perform at the National Youth Festival.

The Youth Festival Programme has been categorized under five major events, viz., Music, Dance, Literary Activities, Theatre and Fine Arts. On the basis of our evaluation of Youth Festival Programmes last year, certain changes have been made for the ensuing youth festivals. Items of Debate, Elocution and Dumb Charades have been deleted. Total number of participants and accompanists for Folk Dances has been raised from 11 to 15. Sub-event of Classical

Instrumental Solo under Music has been further bifurcated into sub-sevents of Taal Vadya (percussion Instruments) and Svar Vadya (Non-Percussion Instruments). In the item of Group Song (Indian) the participants will be required to present two songs in 10 minutes, one of the songs being a folk song.

Theme for the Inter-University Youth Festivals 1987-88 will be National Integration which would be applicable to the cultural events of Group Song (Indian); Folk Dance; One Act Play; Skits; Mime and Fine Arts. The size of a contingent from each university has also been raised from 22 to 30 from this year. Keeping in view the programme of the Russian youth during the Festival of USSR in India, the Cultural Committee of AIU has proposed the following venues to hold Inter-University Zonal Youth Festivals.

The Inter-University National Youth Festival (IUNYFEST) is proposed to be held in the last week of January 1988.

An added attraction of the youth festivals for this year would be the participation of 500 Russian youth, visiting India in several groups as part of the Festival of USSR in India.

Zone	*Venues*	*Dates (Tentative)*
North	Haryana Agricultural University, Hisar	Nov. 21-24, 1987
West	University of Bombay, Bombay	Dec. 3-6, 1987
South	Madurai Kamaraj University, Madurai	Dec. 26-29, 1987
East	Manipur University, Imphal	Jan. 6-9, 1988

News from Abroad

New Solar Cooker

University of Sydney researchers are believed to have developed a solar cooker that can match the performance of gas and electrical stoves. The researchers in the univeristy's school of physics say their new cooker can do practically anything a gas or electric stove does and, because it includes a small pressurised water vessel, can also heat water or power a refrigerator.

Dr David Mills, one of the scientists behind the idea, believes the system is the first really practical step towards providing a solar kitchen for developing countries. His tests have shown that the cooker can make two large family meals on sunny days and can easily be supplemented with conventional fuel on cloudy days.

Previous solar cookers proved unpopular for several reasons—they could not store heat, often had to be placed outdoors, were slow to heat up, could be used only a few hours a day or needed frequent repositioning of the collector mechanism to follow the sun.

The new cooker has no moving parts, makes use of common materials, and can fry, bake, boil or steam food. Its hot plate can be placed indoors, and heat storage allows cooking after sundown. Development into a readily acceptable practical form was expected to take about one year, Dr Mills said.

Spare Parts for Scientific Equipment

The Third World Academy of Sciences (TWAS) in pursuance of its objective to promote experimental research in Third World countries, has launched a scheme to assist in the acquisition of badly needed spares and replacement parts for scientific equipment. The scheme covers the cost of small items of spare parts for scientific equipment which cannot be obtained or manufactured locally. The cost for a single request should not exceed US $200. Special consideration is, however, shown to requests for smaller amounts. Before forwarding a request to TWAS, applicants are expected to obtain quotations for required items, including air freight costs. If approved by the Academy, an order will be placed with the supplier who will be asked to send the items direct to the applicant institution. The payment will be made to the supplier direct by the Academy. A copy of the order will be sent to the applicant institution so as to arrange for customs clearance.

Further information can be had from:

The Third World Academy of Sciences (TWAS),
C/o International Centre for Theoretical Physics (ICTP),
P.O. Box 586, 34100 Trieste, ITALY.

Sports News

Probables for Zagreb Universiade

Association of Indian Universities (AIU) has finalised the list of probables who would undergo training at Delhi prior to their participation in the Zagreb Universiade to be held at Yugoslavia from July 8 to 19, 1987. The probables were picked up at the trials held at Bangalore in April. The probables in Athletics and Tennis are:

Athletics

1. Asha Agrawal — Delhi Univ.
2. Charulata Naigoanker —Nagpur Univ.
3. Rajshree Chaturvedi —Delhi Univ.

Tennis

1. Manoj Kumar —Bharathiar Univ.
2. Zubin Irani —Madras Univ.
3. M. Balachandran —Anna Univ.
4. Nasndni Rangarajan; and
5. Nareen Sujatali.

The final coaching camp for the athletes will be organised from May 15, 1987 and for Tennis Players from 13 June to 6 July, 1987 at Delhi.

Varsity Athletes Shine at Nationals

Ram Mehar of Haryana Agricultural University and Rajender Prasad of Kurukshetra University won laurels at the recently concluded Senior National Wrestling Championships at Bhopal. Ram Mehar won a Silver Medal in the 64 kgs. weight category while Rajender Prasad claimed a Bronze Medal in the 62 kgs. weight category. Randhir Singh, another wrestler from HAU, performed brilliantly though missed the Bronze Medal in 48 kgs. weight catagory.

The Meaning of Secularism

(*Contd. from page 11*)

the process of emotional integration of our poeple?

The process of emotional integration can and should begin right at the stage of the school, which is the child's first major experience of socialization outside the home. Some conscious direction by the teachers can help to make the socialization a means of recognising the oneness of people underlying differences of social, economic and religious background. The internalization of the human values of secular democracy and emotional integration can be promoted in an interesting and effective manner among school children through informal but meaningful interaction in extra-curricular activities.

At the college and university level, the process can be reinforced through a more explicitly educational approach. The first University Education Commission, of which Dr. Sarvepalli Radhakrishnan was Chairman, pointed out that, under the Constitution, "There is no State religion. The State must not be partial to any one religion. All the different forms are given equal place, provided they do not lead to corrupt practices. Each one is at liberty to approach the Unseen as it suits his capacity and inclination. If this is the basis of our Secular State, to be secular is not to be religiously illiterate. It is to be deeply spiritual and not narrowly religious."

Now that the concept of a core national curriculum has been accepted, it seems to me that consideration might be given to the inclusion in it of a course covering the development of human values, the world over and with special reference to India. Such a course would cover the contributions made to the development of a humanistic outlook by the various religions, by outstanding thinkers, by Marxism and the different schools of socialist thought, as well as by modern science many of whose finding are supportive of the concepts of humankind's oneness and of the ecological relatedness of all life on earth.

The introduction of such a course should not adversely attract Article 28 of our Constitution relating to religious instruction. Its provisions are designed only to prevent the indoctrination of students in any one religion in educational institutions run, aided or recognised by the State. On the other hand, the kind of course that I have ventured to suggest could facilitate the realisation of the objective set out in the Preamble to the Constitution, namely a "Sovereign Socialist Secular Democratic Republic". As Jawaharlal Nehru said in his foreword to a book on secularism in 1961, we have "to make the ideals proclaimed in our Constitution a part of our thinking and living, and thus build up a really integrated nation". ☐

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Reddy, B.P. *Some contributions to the theory of distributional integral transforms.* Shivaji. Dr. M.S. Chaudhary.

Physics

1. Ashok Kumar. *Thermal analysis of solar distillation systmes.* Delhi. Dr. J.D. Anand.

2. Biswas, Swati. *Metal insulator semiconductor and junction studies.* Delhi. Prof. Abhai Mansingh.

3. Choudhary, Brajesh Chandra. *Experimental high energy physics.* Delhi. Dr. R.K. Shivpuri.

4. Gupta, Sudha. *Simultaneous determination of diffusion length, diffusion constant minority carrier lifetime, surface velocity and absorption coefficient in a semiconductor material and in a solar cell.* Delhi. Prof. Feroz Ahmed.

5. Kumar Rajesh. *Molecular theory of liquid crystals.* BHU. Prof. S.K. Tolpadi and Dr. B.S. Sharma.

6. Mishra, Ashok Kumar. *Study of molecular structure and spectra.* BHU. Dr. P.C. Mishra.

7. Mohammad Shakeel Akhtar. *Determination of carrier lifetime diffusion length and diffusion co-efficient of solar cell materials using modulated light beam.* Delhi. Prof. Feroz Ahmed.

8. Nakharu Prasad. *Interfacial and phase transition properties of liquid crystalline phase.* BHU. Dr. Shri Singh.

9. Paul, Rashmi. *Cosmic evolution.* Delhi. Dr. J.N. Tandon and Dr. K.K. Mahajan.

10. Santhosh, C. *Study of molecular structure and spectra.* BHU. Dr. P.C. Mishra.

11. Singh, Indra Deo. *Growth and characterization of semiconducting crystals.* BHU. Prof. G. Singh.

12. Singh, Priya Barata Narain. *Physics of liquid crystals.* BHU. Prof. Y. Singh

13. Srivastav, Sarita Rani. *Solid electrolytes.* BHU. Dr P.N. Gupta.

14. Vipin Prasad, J. *Laser spectroscopy of molecules.* BHU. Dr. S.S. Rai and Dr. S.N. Thakur.

Chemistry

1. Arun Kumar. *Theoretical calculations of potential energy surfaces and transition state structures.* Delhi. Dr. (Ms) Rita Chadha.

2. Chaturvedi, Padmaja. *Effect of certain indigenous drugs on endocrine system.* BHU. Dr. Y.B. Tripathi and Prof. S.N. Tripathi.

3. Chaubey, Brijesh Kumar. *Studies in transition metal complexes with hydrazine derivatives.* BHU. Dr. K.K. Narang.

4. Jha, Shambhu Nath. *Theoretical study of bonding in transition metal compounds.* Delhi. Dr. (Ms) Rita Chadha.

5. Maurya, Sanjai Kumar. *Chemical investigation of Terminalia arjuna and allied species.* BHU. Dr. V.B. Pandey and Dr. V.P. Singh.

6. Sabu, K.R. *Surface supported transition metal catalysts for the alkylation of aromatic compounds.* Kerala. Dr. K.V.C. Rao and Dr. C.G. Ramachandran Nair.

7. Saroj. *Chemical investigation of medicinal plants.* BHU. Dr. V.J. Tripathi.

8. Singh, Sanjaya Kumar. *Stereo-chemical studies.* BHU. Dr. R.M. Singh.

9. Singh, Udai Raj. *Complexes of some N-O, donor ligands.* BHU. Dr. B. Singh.

10. Singh, Vinod Prasad. *Structure and dynamic behaviour of unsymmetrical sulfur ligands complex.* BHU. Dr. V.D. Gupta.

11. Yadav, Sudarshan Singh. *Studies on chemical constituents of some Zizyphus.* BHU. Dr. V.B. Pandey.

Earth Sciences

1. Singh, Udaya Bhan. *Geology of the area around Inderva, Village Koderma, Bihar.* BHU. Prof. R.K. Lal.

Engineering & Technology

1. Anil Kumar. *Absorption characteristics of colouring ions in glasses.* BHU. Dr. S.P. Singh.

2. Madan Gopal, K. *Studies on thermoelastic martensites.* BHU. Prof. S. Lele and Dr. S. Banerjee.

3. Mishra, Sunita. *Opto-electronic devices using III-V semiconductors.* BHU. Prof. S.B. Paul.

4. Pathak, Chet Narayan. *Electron transport properties of semi-conducting tellurides.* BHU. Dr. Shamsuddin and Dr. D. Pandey.

5. Rai, Chandra Shakhar. *Propagation of microwave under adverse atmospheric conditions.* BHU. Dr. B.R. Vishwakarma.

6. Rai, Om Prakash. *Role of blue-green algae as bio-fertilizer.* BHU. Dr. Subir Kundu and Dr. Avijit Sen.

7. Shrivastava, Prabhu Narayan. *Behaviour of ground wire under fault conditions for EHU and UHV system.* BHU. Dr. D.S. Chauhan and Dr. V.B. Singh.

8. Singh, Sheo Kumar. *Electromagnetic interaction with material media.* BHU. Dr. K.P. Singh

9. Sinha, Parmeshwar Prasad. *Phase transformations in managing steel.* BHU. Dr. M.K. Mukherjee and Prof. D.S. Sarma.

10. Vikrama Singh. *High temperature corrosing in mixed gaseous environment.* BHU. Prof. V.S. Tora and Dr. J.S. Kachhawaha.

BIOLOGICAL SCIENCES

Biochemistrry

1. Arora, Abha. *Biochemical profile in diabetes associated with renal and hepatic disorders.* Devi Ahilya. Dr. R. Vijayvargiya.

2. Sisodia, Divya Prabha. *Involvement of immune response and its biochemical correlation in various clinical manifestation of hepatitis B virus infection.* Devi Ahilya. Dr. R. Vijayvargiya.

3. Tripathi, Virendra Kumar. *Nutritional studies of certain leaf protein concentrates.* BHU. Dr. H.P. Pandey, Prof. S.S. Dubey and Prof. R.H. Singh.

4. Vishnoi, Alka. *A study of physicochemical aspects of stone formation with special reference to the role of ascorbic acid.* Devi Ahilya. Dr. R. Bhardwaj.

Botany

1. Behera, Yashobanta Narayana. *Chloroplast degradation in tree leaves during senescence.* Sambalpur. Dr. Basanti Biswal.

2. Chambial, Savita. *Effect of grazing and burning on structure, productivity and nutrient cycling of the grassland vegetation at Panechi, Shimla.* HP. Dr. R.S. Thakur.

3. Dani, Haresh Prasad. *Ecological studies on a tropical deciduous forest from Orissa, India.* Sambalpur. Dr. Niranjan Behera.

4. Dongre, Pradip Narayan. *Ecological studies on two herbs from the wastelands.* BHU. Dr. H.R. Sant.

5. Joshi, Sushil Kumar. *Production and decomposition of litter in a tropical mixed wood forest from Orissa, India.* Sambalpur. Dr. Niranjan Behera.

6. Misra, Gayatri. *Ultrastructure and histochemistry.* Delhi. Dr. M.B. Vijayaraghavan.

7. Rajagopal, R. *Photosynthesis and partitioning studies in Hevea brasiliensis.* Kerala. Dr. M.R. Sethuraj.

8. Suvercha. *VAM association with different economically plants.* Delhi. Prof. K.G. Mukerji.

9. Yashveer Singh. *Production of hydrocarbons by Botryococcus.* BHU. Prof. H.D. Kumar.

Zoology

1. Behera, Akshya Kumar. *Genetic effects of some pharmaceutical in mice and study of a case of mouse chromosome mosaic.* Sambalpur. Dr. B.E. Das.

2. Baskaran, G. *Insect reproduction.* BHU. Prof. K.P. Srivastava.

3. Dash, Nabin Chandra. *Comparative eco-physiological studies on tropical earth worms from an eucalyptus and a sal forest of Orissa, India.* Sambalpur. Dr. B.K. Senapati.

4. Sahu, Sanjat Kumar. *The ecological implications of interspecific variations in some tropical earthworms from pasture ecosystems of Orissa, India.* Sambalpur. Dr. B.K. Senapati.

5. Samal, Udaya Narayan. *A study of fluoride pollution around an aluminium factory of Orissa.* Sambalpur. Dr. B.N. Naik.

6. Sharma, Abhay. *Studies on head-shock gene expression.* BHU. Prof. S.C. Lakhotia.

7. Sharma, Ranjana. *Regulation of seasonal conditions by adrenal and thyroid function in Indian palm squirrel, Funambulus penanti.* BHU. Dr. C.M. Chaturvedi.

8. Srivastava, Sanjay Kumar. *Population genetics of Drosophila.* BHU. Dr. B.N. Singh.

Medical Sciences

1. Ahuja, Alka. *Formulation and persentation of drugs in aerosol systems.* Delhi. Dr. S.N. Sharma.

2. Awadhesh Prasad. *Pharmacognostical and pharmacological evaluation of some anti-inflammatory indigenous drugs.* BHU. Dr. A.K. Wahi and Dr. V.K. Agrawal.

3. Bhattacharya, Mahua. *Tribulin as a biochemical agent in neuropsychiatric disorders.* BHU. Prof. S.K. Bhattacharya.

4. Chaubey, Heena. *Synthesis and hypoglycemic activity of amidine derivatives.* BHU. Dr. S.N. Pandey.

5. Gupta, Arvind Kumar. *Role of indigenous drugs in the management of stenarbud.* BHU. Prof. G.C. Prasad.

6. Jha, Fanishwar. *A study on the pesticide activity of submerged and aquatic plants in reference to Ganga water pollution.* BHU. Prof. R.H. Singh and Prof. G.P. Agrawal.

7. Kurian, Tomson. *Synthesis and evaluation of some gastric antacids.* HS Gour. Shri R.K. Upadhyaya.

8. Pande, Devendra Nath. *Further studies on poorvakarma in anaesthesia.* BHU. Dr. S.B. Pande.

9. Patairiya, Jagdish Prasad. *Swasthya rakshana mein jyotisha ka yogdan.* (Hindi). BHU. Dr. I.P. Singh.

10. Pathak, Seema. *Upanishadon me manas prakriti* (Hindi). BHU. Prof. G.P. Dube.

11. Prem Prakash. *Studies on the stability, kinetics, compatibility and physico-chemical interactions of some drugs.* BHU. Dr. R.P. Gupta.

12. Rai, Virendra Pratan. *Clinical and pharmacological study of animals milk.* BHU. Prof. J.K. Ojha.

13. Shamala, S. *Role of basti and pichu on prasawa.* BHU. Prof. P.V. Tewari.

14. Sharma, Neera. *Upanishadon me swastha-vritta ki visheya samagri.* (Hindi). BHU. Dr. I.P. Singh.

15. Shukla, Shyamji. *Renal cardiac changed under influence of certain indigenous drugs.* BHU. Prof. G.P. Dubey and Dr. D.K. Rai.

16. Singh, Anita. *Synthetic and biological activities of* 1, 2–4 *thiadiazoles.* BHU. Dr. S.N. Pandaya.

17. Singh. Dharm Raj. *A study of the concept of gastroenterology in ayurveda with special reference to panchamrit parpati kalp in the management of Grahani.* BHU. Prof. R.H. Singh.

18. Tiwari, Pramil. *Investigations on some metabolic aspects of bioflavanoids..* BHU. Dr. S.S. Gambhir.

19. Tripathi, Birendra. *Concept of dermatology in ayurveda.* BHU. Prof. D. Ojha.

20. Vaish, Sunita Rani. *Study of role of basti and picu on labour.* BHU. Prof. (Ku.) P.V. Tewari.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

PHYSICAL SCIENCES

Mathematics

1. Basu, Susmita. *Study in plane transonic profile flow at zero incidence.* IIT Kharagpur.

2. Biswal, Mahendra Prasad. *Computational study of geometric programming problems.* IIT Kharagpur.

3. Challa Prakash. *Studies on some aspects of software engineering.* IIT Kharagpur.

4. Renu Bala. *Convergence and aproximation problems in fourier analysis.* Dayanand.

5. Sehgal, Vijay Kumar. *On some stochastic process oriented models of human reproductive process.* Delhi.

Physics

1. Ansari, Muslim Ahmad. *Lattice thermal conductivity of some non-metals.* IIT Kharagpur.

2. Bhatt. B.D. *Effect of surface profiles, obtained by some machining processes, on the behaviour of metallic joints bonded by adhesives.* S. Gujarat. Dr. V. Radhakrishnan.

3. Khatry, Madhulika. *Microwave adsorption and relaxation phenomena in some polar liquids.* Rajasthan.

4. Mahanty, Madan Mohan. *Modified z-formalism to study coherent optical transients.* IIT Kharagpur.

5. Manna, Ananda Mohan. *Experimental studies on total photoelectric cross-sections.* IIT Kharagpur.

6. Mukhopadhyay, Mrinal Kumar. *Studies on some problems of anharmonic synchronization of oscillators.* Burdwan.

7. Nigli, Selina. *X-ray, optical and electrical study of melt grown pure and doped* $CdBr_2$, CdI_2 *and* PbI_2 *single crystals.* Delhi.

8. Pal, Bimalendu. *Phenomenological studies of alpha decay and nuclear masses.* IIT Kharagpur.

9. Ray, Jnanbikas. *Some studies on the properties of two dimensional electron gas in semiconductors.* Calcutta.

10. Renuka. *Electron transport in n-type solar grade polycrystalline silicon.* Delhi.

11. Shanmugham, M. *Nucleation, growth and characterization of KDP crystals and some aspects of KDP-ADP mixed crystals.* Anna.

12. Subramanian, P. *Investigations on magnetic resonance of some solids.* Madurai.

13. Subramanian, Uma. *Studies on some optical and electrical properties of* CaF_2 : *ND single crystals.* IIT Kharagpur.

14. Suryanarayana, P. *Preparation and characterization of single crystals of* HgI_2 *and studies on the effects of X-ray and gamma ray irradiation and the effect of aging on their electrical and optoelectronic properties.* IIT Kharagpur.

15. Sushma Kumari. *A 40 nucleus interactions and study of anomalons.* Jammu.

Chemistry

1. Alagar, M. *Studies in esterification reactions : Preparation and characterisation of silicate esters for some engineering applications.* Anna.

2. Alsadat, Mohommad Hadi.Meshkat. *Studies on natural and synthetic drugs.* Saurashtra.

3. Bhayani, R.J. *Studies on heterocyclic compounds : Synthesis of furocoumarins.* Saurashtra.

4. Borah, Harsha Narayan. *Studies in the chemistry of benzofuroxans and related systems.* Dibrugarh.

5. Chattopadhyay, Sibaprasad. *Fluorimetric and spectrophotometric determination of trace ingredients in environmental and other samples.* Burdwan.

6. Chauhan, Kiran Savailal. *Studies on copolymers (N-P-tolylmaleimide (o-n-butylmethacrylate).* Bhavnagar.

7. Dash, Gobinda Chandra. *Studies on the reactions of transition metal β-diketonates.* Utkal.

8. Duggal, Rakesh. *Derivatives of substituted alkanolamines with some trivalent (Main group III) elements.* Rajasthan.

9. Gogoi, Amrit Kumar. *Polymerization of vinyl monomers with amino and carbon tetrahalides initiated by charge transfer mechanism.* Dibrugarh.

10. Goswami, Amrit. *Synthesis of organophosphorous compounds showing pesticidal activity.* Dibrugarh.

11. Haque, Shah Abdul. *Studies on vinyl polymerization : Polymerization of N-vinylcarbazole by unmodified and chemically modified carbon black.* IIT Kharagpur.

12. Kadyan, Partap Singh. *Analytical applications of heterocyclic azo dyes.* Dayanand.

13. Kaneria, P.T. *Studies on some compounds of medicinal interest.* Saurashtra.

14. Khatkar, Satyender Pal. *Amperometric determination of some metal species.* Dayanand.

15. Konwar, Dilip. *Azadiene analogues and related systems in heterocyclic synthesis.* Dibrugarh.

16. Lakhani, R.R. *Studies on heterocyclic compounds.* Saurashtra.

17. Mishra, Shashwat. *Chemical investigation of antifertility active components of Pyrus communis (stem bark) and Citrullus colocynthis (root).* Vikram.

18. Mukhopadhyay, Asok Kumar. *Studies on molecular complexes.* Burdwan.

19. Nageswara Rao, Evani. *Studies on pure and doped $CuAI_20_4$ spinel oxide catalysts.* IIT Kharagpur.

20. Patel, K.S. *Studies on metal chelates.* Saurashtra.

21. Prasada Reddy, Battula Rajendra. *Studies on some chemical parameters of harbour and coastal waters of Visakhapatnam, Bay of Bengal.* Andhra.

22. Sankara Rao, Ippili. *Studies on substitution reactions of chromium (III)—Nitrilotriacetate complexes.* Andhra.

23. Santra, Prasanta Kumar. *Reduction of nitroaromatics, alkenes and alkynes by transition metal complexes both in homogeneous and heterogeneous phases.* IIT Kharagpur.

24. Shahsafi, Mohammad Ali. *Studies on heterocyclic compounds.* Saurashtra.

25. Sharma, Savita. *Chemical investigation of antifertility active components of roots of Musa paradisica and Echinops echinatus.* Vikram.

26. Vadalia, D.J. *Studies on drug potential.* Saurashtra.

27. Veeraiah Chowdary, Tummala. *Aggregation studies of some azine dyes.* Andhra.

Earth Sciences

1. Bandyopadhyay, Mrinal Kumar. *Petrology and geochemistry of the granulites and anorthosites around Sunakhala, Orissa.* IIT Kharagpur.

2. Bhat, Gh. Mohd. *Microfacies analysis of limestone formations around Varinag, Kashmir Himalaya.* Jammu.

3. Mitra, Sumit Kumar. *Structural history of the rocks of the Delhi group around Todgarh, Central Rajasthan.* IIT Kharagpur.

4. Mohanty, Jatish Chandra. *Mineralogy and geochemistry of ultramafic granophyre and associated rocks of Sukinda area, Orissa.* Andhra.

5. Sanyal, Tuhina. *Thermoluminescence studies on fluorite, limestone and quartz from two geological environments.* IIT Kharagpur.

6. Singh, Madhulika. *Geomorphology, structure and petrology of the Napheline syenite of the area around Kishangarh (Rajasthan).* Vikram.

7. Ugarkar, Annappa Ganapatrao. *Mineralogy and geochemistry of sulphide gold quartz veins and gold bearing metavolcanics of Mangalur Green-stone belt, Gulbarga District, Karnatak, India.* Karnatak.

Engineering & Technology

1. Acharya, Narendra Nath. *Sintering of cooper-tin composites.* IIT Kharagpur.

2. Akhtar, Sania. *Thermoplastic elastomers from polyethylene-natural rubber blends.* IIT Kharagpur.

3. Bhattacharjee, Dhurbajyoti. *Study on the performance and emission characteristics of spark ignition engine using gasoline/ethanol blends with surge chamber.* IIT Kharagpur.

4. Biswas, Alok Kumar. *An experimental investigation tc determine the influence of reinforcing material characteristics on certain problems relating to the stability of reinforced sand medium.* IIT Kharagpur.

5. Bose, Asim Kumar. *Fare-responsive routing and scheduling of contract carrier buses with special reference to Calcutta.* IIT Kharagpur.

6. Chakrabarti, Bijoy Kumar. *Studies on the preparation, characterisation and application of an acetone based polysylicic acid binder for ceramic shell investment casting process.* IIT Kharagpur.

7. Chari, K.V. *Behaviour of contracted weirs in non-standard regions.* Madurai.

8. Das, Achintya Kumar. *Some effects of gas bubble agitation during steelmaking.* IIT Kharagpur.

9. Das, Bidhu Bhusan. *An investigation on characteristic behaviour, strength, serviceability and reliability of reinforced concrete beamless slabs.* IIT Kharagpur.

10. Das, Sanjaya Kumar. *Volume fraction and temperature dependence of particle coarsening in plain carbon steel.* IIT Kharagpur.

11. Deshmukh, Suhas Raghunathrao. *Turbulent drag reduction effectiveness, shear stability and biodegradability of graft copolymers.* IIT Kharagpur.

12. Dolui, Swapan Kumar. *Development of matrix resins for composites.* IIT Kharagpur.

13. Ghosh, Prabhat Kumar. *Magnetic properties of first transition and rare earth group of compounds at low temperatures and magnetocaloric effects in chromium chalcogenides.* IIT Kharagpur.

14. Godiwalla, Kersi Minoo. *Analysis of heat transfer during solidification of complex-shapped castings in sand.* IIT Kharagpur.

15. Komaraiah, M. *Some studies on ultrasonic machining.* Osmania.

16. Mahapatra, Rudra Charana. *Elastoplastic modelling of some geotechnical problems by mixed finite elements.* IIT Kharagpur.

17. Mahato, Beni Madhab. *Studies on block copolymers.* IIT Kharagpur.

18. Majumdar, Sujit Kumar. *Quantitative study on superplastic behaviour of some ZN-AI eutectoid/near eutectoid alloys and aluminium bronze alloys using statistical design of experiment.* IIT Kharagpur.

19. Mukherji, Debashis. *The relation between structure and properties in Ti-6. 5A1-3.3M o-1. 6Zr-o. 31Si alloy.* IIT Kharagpur.

20. Nallan, Chakravartula Jagan. *Application of volterra series in the analysis and identification of non-linear systems.* Osmania

21. Nayak, Sasmita. *Structure properties relationship of polymers with special reference to polyesters.* IIT Kharagpur.

22. Samanta, Biswanath. *Bond graph based analysis of dynamic systems through substructuring.* IIT Kharagpur.

23. Sankrithyan, V. Bagula. *Studies on some optoelectronic properties of cadimum phosphate and phosphide.* IIT Kharagpur.

24. Satsangi, Subir Kumar. *An investigation of stiffened plate panels using isoparametric stiffened plate bending elements.* IIT Kharagpur.

25. Sinha Ray, Sabyasachi. *Polymers from a renewable resource.* IIT Kharagpur.

26. Subrahmanyam, J.S.R. *Diagnostic logic graph for analysis and diagnosis of digital networks.* IIT Kharagpur.

27. Tharuniayya, C. *Non-newtonian analogues of the Newtonian fluids for the flow with elastic fibre suspensions.* IIT Kharagpur.

28. Thatte, Chandrakant Damodar. *Evolution of design of an energy dissipator for large spillway.* Baroda.

29. Wali, Udayakumar V. *Studies on computer-aided analysis of switched capacitor networks.* IIT Kharagpur.

NETAJI SUBHAS NATIONAL INSTITUTE OF SPORTS
PATIALA

Application invited for the Government of India Scholarships in the field of Sports for 1987-88.

Applications are invited on the prescribed form for the award of scholarships under the following schemes :—

1. 1200 National level scholarships of Rs. 225/- per month each for the students studying in schools who have secured winner and runners-up oisutuibs in team events and first three positions in individual events in a recognised National Sports Meet.
2. 2095 State level scholarships of Rs. 150/- per month each for students studying in Schools who have secured winner and runners-up positions in team events and first three positions in individual events in a recognised State Sports Meet.
3. 300 National level scholarships under NSO Programme of Rs. 300/- per month each for the University/College students who have participated in a Junior/Senior National Championship in an all India Inter-varsity Championship.
4. 30 Scholarships of Rs. 300/- per month each to sports women who have secured first position in an individual event in a Senior National Championship or to those who have represented the country in an approved international competition, obtaining satisfactory position.
5. 5 Scholarships of Rs. 150/- per month each to women holding Master's Degree in Physical Education and doing M. Phil/Ph. D. (The value of scholarship under this category is likely to be revised).

Those who are in receipt of scholarships for the year 1986-87 may also apply for the renewal of their scholarships, under certain conditions.

For full particulars and prescribed application forms, please apply to the Director General, NIS. Patiala-147001, mentioning the scheme under which a candidate wants to apply and also enclosing with the letter self addressed envelope of the size of 23 cm.x10 cm.

Application forms under the Scheme at Serial No. 1 and 2 above are also available with the State Education Department, Directors of Education, Director of Public Instructions, State Sports Councils and National Sports Federations concerned and for Scheme under Serial No. 3 above with Registrars of Indian Universities.

LAST DATE FOR RECEIPT OF APPLICATIONS OF THE PRESCRIBED FORM THROUGH PROPER CHANNEL IS 31st JULY, 1987.

United States Educational Foundation in India

"Fulbright House", 12 Hailey Road, New Delhi-110001

Applications are invited for the following scholarships/fellowships for 1988-89 academic year:

1. U.S. Government post-doctoral fellowships for independent research (duration 4-6 months). Scholars permanently employed in colleges, universities and research institutions, with Ph.D. or equivalent published work, below 45 years of age are eligible for fellowships. Available fields: American Studies, Educational Technology, Economics (Energy Economics, Resource Economics, Economics of Irrigation), Non-conventional Sources of Energy, Transportation Management and Environmental Management. Last Date - **July 15, 1987.**
2. Readers and Professors and faculty of equivalent rank in research institutions, below the age of 55 years and permanently employed, with Ph.D. or equivalent published work, may apply for short-term (3 months) fellowships. Fields (i) American Studies, (ii) Library and Information Sciences, and (iii) Philosophy of Education. Ph.D. requirement may be waived for applicants in the field of Library Science. Last Date : **July 15, 1987.**
3. Hubert H. Humphrey Fellowships for academic study and practical training for nine months, for managers and administrators at decision making levels in fields of Agriculture, Planning Resource Management, Public Health and Public Administration. Preferably first class both at bachelors and masters level. Age below 35. **Last Date : June 15, 1987.**
4. U.S. Government post-doctoral travel-only grants for those who have a teaching/research appointment in a U.S. university for a minimum period of 3 months, with assured support of at least $ 1,000 per month can apply. **Last Date : May 15, 1987 and October 15, 1987.** (Competition is held twice a year).
5. East-West Center, Hawaii, pre-doctoral scholarships. Permanently employed persons, below 35 years, with two years of experience in the field of specialization with 55% marks in B.A. and 60% in M.A. are eligible. Available fields: Agricultural and Resource Economics; Agronomy and Soil Sciences; American Studies; Anthropology; Biostatistics/Epidemiology; Botanical Sciences; Business Administration; Chemistry; Communication and Information Sciences; Drama and Theatre; Economics; Educational Psychology; Electrical Engineering; Entomology; Geography, Geology and Geophysics; History; Horticulture; Linguistics; Mechanical Engineering; Meteorology; Microbiology; Ocean Engineering; Oceanography; Philosophy; Political Science; Psychology; Public Health; Sociology; Zoology. **Last Date : June 14, 1987.**
6. Internships in Communication Technology for a non-degree program up to 6 months. Faculty members teaching courses in Audio-visual communication in Indian universities and persons employed in television (software and production), below 40 years of age are eligible. **Last Date: August 7, 1987.**

Only persons holding permanent positions are eligible to apply. For details and preliminary application forms, please write to the relevant office of USEFI, giving details of age, class and percentage of marks of all university examinations taken and present position, with a stamped (Rs. 1.50) self-addressed envelope, size 23 cms. x 10 cms.:

1. U.S. Educational Foundation in India
'Sundeep', 4 New Marine Lines,
Bombay 400 020
2. U.S. Educational Foundation in India
8 Short Street,
Calcutta - 700 017
3. U.S. Educational Foundation in India
12 Hailey Road,
New Delhi - 110 001.
4. U.S. Educational Foundation in India
American Consulate Building,
Mount Road, Madras - 600 006.

CLASSIFIED ADVERTISEMENTS

APPOINTMENTS

THE GANDHIGRAM RURAL INSTITUTE

(Deemed University)

GANDHIGRAM

Dated : 24-4-1987

Applications are invited for the following posts:

Item No.	*Name of the Post*	*No. of Posts*	*Scale of Pay*
1.	Reader in Biology	1	Rs. 1200-50-1300-60-1900
2.	Lecturer in Physics	1	Rs. 700-40-1100-50-1300-EB-50-1600
3.	Lecturer in Mathematics	1	-do-
4.	Lecturer in Horticulture	1	-do-
5.	Lecturer in Handloom Technology	2	-do-
6.	Publication Officer	1	-do-
7.	Instructor for Khadi and Handloom Technology	2	Rs. 500-25-600-30-900
8.	Production Manager	1	Rs. 1045-45-1450-65-1775

Qualifications

Item No. 1

(A) Ph. D., Degree in the concerned field of specialization.

(B) Teaching experience in any University or College for atleast five years.

(C) Experience in Research in the concerned field of specialization as evidenced by published papers in Scientific Journals and Books.

(D) In addition to the above qualifications persons should have Degree or Diploma in Bio-gas Technology and renewable energy.

Item No. 2

(A) A Doctorate Degree or Research work of an equally high standard; and

(B) Good academic record with at least second class (C in the seven point scale) Master's Degree in a relevant subject from the Indian University or an equivalent degree from a foreign University.

Item No. 3

(A) A Doctorate Degree or Research work of an equally high standard and good academic record with atleast second class (C in the seven point scale) Master's Degree in Mathematics with additional qualification in Computer Science under cross migration Programme.

OR

Master of Computer Applications/ M. Phil in Mathematics or Applied Mathematics with additional qualification in Computer Science under cross migration Programme.

Item No. 4

(A) A Doctor's Degree or Research work of an equally high standard; and

(B) Good academic record with atleast second class (C in the seven point scale) Master's Degree in a relevant subject from an Indian University or an equivalent Degree from a Foreign University.

Item No. 5

(A) B. Tech. in Textile Technology.

(B) Five years experience in Khadi/Handloom Textile field out of which 2 years should be teaching experience.

OR

Diploma in Handloom Technology with 8 years experience of which 3 years must be teaching.

Item No. 6

(A) First or II Class Master's degree preferably in English Language and Literature and two years professional experience in editing, documenting and bringing out publications at an Institution of repute.

(B) Diploma in Journalism desirable.

(C) Retired persons with experience may also apply.

Item No. 7

(A) Diploma holders in Handloom Technology with 3 years practical experience in Khadi/Handloom Textile field. Teaching experience will be additional qualifications.

Item No. 8

(A) A Graduate with Tamil as the language persons with high qualification will get preference.

(B) Must have at least five years minimum experience in running two Village Industries—must have knowledge of maintaining commercial accounts—preference will be given to those experienced in managing soap and processing of Cereals and Pulses industries units.

(C) Persons who have undergone training in Village Industries conducted by the Khadi and Village Industries Commission will be given preference.

(D) Age, qualification relaxable in case of persons with outstanding experience.

(E) Retired persons with outstanding experience may also apply.

For all Posts

(A) Experience in Gandhian constructive work and/or Diploma in Gandhian Thought.

Centre for Life Oriented Education

1. Co-ordinator

Post 1 (Temporary)
Rs. 1200-50-1300-60-1900.

Qualification

Good academic record with a Doctoral Degree on published work of equivalent merit, Evidence of being actively engaged in (i) Research or (ii) innovation in teaching methods or (iii) production of teaching materials.

Experience

About five years experience of teaching and/or research provided that atleast three of these were as Lectuter or in an equivalent position.

Age

Preferably below 40 years (45 years in case of women candidates).

2. Research Assistant

Post 1 (Temporary)
Rs. 700-40-1100-50-1300-EB-50-1600.

Qualification

Good academic record with atleast second class Master's Degree in any discipline from an Indian University or its equivalent degree as recognised by the Indian Universities.

Experience

Atleast three years experience in the field of School Education or Research work.

Age

Preferably below 40 years (45 years in the case of women candidates).

Note : All posts will get allowance as per the Gandhigram Rural Institute rules.

Candidates already in service in Universities, Educational Institutions, Government Establishments/Organisations should send their applications through their present employers on or before the prescribed date.

Candidates may apply giving their full Bio-data in detail along with true copies of Certificates enclosing Postal order for Rs. 10/- (Rupees ten only) not dated prior to **20-4-87** payable to the Registrar, Gandhigram Rural Institute Gandhigram—624 302, Anna District, payable at Gandhigram Post Office (Not refundable).

Last date for receipt of application is **21st May, 1987.**

P.S. Mohamed Mohideen
REGISTRAR INCHARGE

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DHANBAD-828 108

Advertisement No. 2/87

The C.F.R.I. proposes to recruit talented Scientific/Technical and administrative personnel for the following positions :

1. **Glass Blower**—1 Post. Rs. 1640-60-2600-EB-75-2900 (Revised)

   Qualification and Experience : I.Sc. with 7 years experience in the Trade in a reputed laboratory/Industry.

   OR

   Matriculate with 10 years experience in the trade in a reputed laboratory/Industry.

   OR

   Class VIII pass—ITI certificate in the trade with 12 to 16 years experience in a reputed Laboratory/Industry.

   OR

   Class VIII pass with 10 years experience in the trade in a reputed Laboratory/Industry.

2. **Senior Security Assistant**—1 Post. Rs. 1600-60-2600-EB-75-2900 (Revised).

   Qualification and Experience: Must be graduate with atleast 3 years experience in a supervisory capacity handling security matters in large industrial establishments or Govt. organisations and having knowledge of handling fire arms and fire fighting equipment. Preference will be given to Ex-service man of JCO rank.

   Job Requirement : The incumbent will be responsible for supervising of security matters in the Institute and in the attached residential colony and will assist Security Officer in all matters of Security measures.

3. **Junior Scientific Assistant :** 1 Post. (Reserved for Scheduled Tribe)
   Rs. 1400-40-1800-EB-50-2300 (Revised)

   Qualification and Experience: Candidate should have Honours Degree in B.Sc. OR First Class in B.Sc. with the subjects: Chemistry with Geology, Physics/Maths. OR B.Sc. Degree with Chemistry having alteast 2 years experience in Chemical analysis.

   Job Requirement : Candidates are required to carry out processing, preparation and various types of analysis of coal samples.

4. **Junior Engineer (Civil)**—1 Post (Reserved for Scheduled Caste).
   Rs. 1400-40-1800-EB-50-2300 (Revised)

   Qualification and Experience : Three years Diploma in Civil Engineering of any recognised Institute. Shall have experience of atleast 2 years in estimation, execution of general building work including sanitary services and water supply following CPWD norms and procedures.

   Job Requirement : The candidate shall take care of various works stated above including their maintenance both for Institute and its Coal Survey Laboratories of the Institute located at Raniganj, Ranchi, Bilaspur, Nagpur.

5. **Hindi Teacher** — 1 Post

   (Reserved for Scheduled Caste)
   Rs. 1400-40-1600-50-2300-EB-60-260 (Revised)

   Qualification and Experience : (i) Second Class Bachelor's Degree or Master's Degree (45% Marks) and above in the degree or Master's degree examination considered as equivalent in the subject concerned (ii) University Degree/Diploma in teaching (iii) Two years of teaching experience, relaxable in case of exceptionally qualified candidates.

6. **Receptionist** — 1 Post.

   Rs. 1200-30-1560-EB-40-2040 (Revised)
   Educational and other Qualification : (1) Graduate, preferably in Science, (2) Pleasing manners and personality, (3) Capable of conversing fluently in English and Hindi.

7. **Junior Stenographer** — 2 Posts.
(One reserved for Scheduled Caste)
Rs. 1200-30-1560-EB-40-2040 (Revised)

Qualification: Candidate should be Matriculate or equivalent.

Speed in English Shorthand and Typewriting: 80 w.p.m. in Shorthand and 40 w.p.m. in Typing.

General: Should also qualify in a competitive proficiency test.

8. **Junior Electrician** — 1 Post.
Rs. 950-20-1150-EB-25-1400 (Revised)

Qualification and Experience: I.T.I. certificate in Electrician course (two years duration) after passing middle/VIII class with 2 years' experience or S.S.L.C. or equivalent with 2 years' experience in the trade, or Matriculate or equivalent with I.T.I. certificate of two years duration. Must possess wireman's permit.

Job Requirement: Has to work in housewiring, LT and HT lines, repair and maintenance of electrical intallation.

9. **Mechanic (Automobile)** — 1 Post.
(Reserved for Scheduled Caste)
Rs. 950-20-1150-EB-25-1400 (Revised)

Qualification

(i) Read upto Class IX (Passed class VIII standard)
(ii) I.T.I. certificate in Automobile/Motor Mechanism.

(iii) At least 5 years experience in a reputed motor garage in repair, maintenance and trouble shooting of vehicle and both Diesel and Petrol engines.

OR

(i) Matriculation+7 years experience in repair, maintenance and trouble shooting of vehicles both Diesel & Petrol engines.
(ii) Possession of driving licence for both heavy and light vehicles.

Desirable: Training in First Aid.

Job Requirement: Repair and maintenance of the vehicle and its ancillary parts—Repair, Maintenance and overhauling of Engines, rectification of defects of auto electric engine etc.

10. **Plumber**—1 Post. Rs. 950-20-1150-EB-25-1400 (Revised)

Qualification and Experience: The candidate should possess ITI trade certificate (2 years duration) after passing Middle/VIII with 2 years experience in plumbing job connected with water, gas and sanitary lines or Matriculation plus 4 years experience in the above line.

General Conditions

1. All posts carry usual allowances as admissible under Central Government Rules. Higher initial start may be considered for deserving candidates. Total emoluments at the minimum of the grade at present are as follows:

On Rs. 1640.00	..	Rs. 1942.60
On Rs. 1400.00	..	Rs. 1596.00
On Rs. 1200.00	..	Rs. 1388.00
On Rs. 900.00	..	Rs. 1128.00

2. **Age:** Age should not exceed 28 years on 1-7-1987, with usual relaxation of 5 years in case of Scheduled Caste, Scheduled Tribe and Ex-army personnel. This does not apply to post at S. No. 1.
3. A lower standard consistent with efficiency will apply in the case of SC/ST candidates. Candidates belonging to this community should invariably enclose an attested copy of the caste certificate issued by a competent authority along with their applications failing which they will not be entitled to the fee concession.
4. The number of vacancies mentioned against each category is provisional and may vary at the time of selection. If more approved vacancies with identical job requirements become available at the time of selection, these also can be filled from the candidates who apply in response to this advertisement.
5. Candidates who have participated in games and sports at the National/State level will be given preference.
6. Candidates working in Govt./Semi Govt. offices/Public Sector undertakings should send their applications through their employers so as to reach the Institute within 15 days from the due date of receipt of applications. Advance copy of the applications will be considered only if the original applications are received through proper channel.
7. Applications for posts at Sl. No. 1 to 5 should be submitted in the prescribed form obtainable upto **30-5-87** on request from the Administrative Officer, Central Fuel Research Institute, FRI P.O., Dhanbad Distt., Bihar, Pin-828108 by sending a self addressed stamped (Re. 1/-) envelope (35 cm x 15 cms) indicating the number of advertisement, Category of post and the post applied for. Application, completed in all respects, accompanied by a Crossed Demand Draft for Rs. 8/- (No application fee for SC/ST candidates) in favour of Director, Central Fuel Research Institute, drawn on State Bank of India, Digwadih Branch should reach on or before **30-6-87.**
8. Applications for posts at Sl. No. 6 to 10 should be submitted in the following format:
   (i) Advertisement Number and Post applied for
   (ii) Name (IN BLOCK LETTERS)
   (iii) Address for Correspondence
   (iv) Date of Birth
   (v) Educational qualifications with details
   (vi) Previous/Present experience/employment and salary drawn/being drawn.
   (vii) Whether belonging to SC/ST communities.
   (viii) Whether related to any of the employees of CFRI. If so the name and designation of employee with nature of relationship.
9. Applications completed in all respects duly supported by attested copies of certificates and testimonials, should reach the Administrative Officer, CFRI, P.O. FRI, Dist. Dhanbad, Bihar, Pin-828108 on or before **30-6-1987**. Separate application should be sent for each post applied for.
10. Travelling allowances as admissible under the rules will be paid to the applicants called for interview for the posts at Sl. No. 1 to 5. All SC/ST candidates not employed in Govt/Semi Govt. Organisation/Govt. undertakings/Corporations etc. will be paid travelling expenses as per rules.
11. Since it is not possible to call all the applicants for interview the applications will be shortlisted for the purpose and the decision of a duly constituted Screening Committee of the Institute will be final in this matter. No interim enquiries whatsoever will be entertained.

"Canvassing in any Form and/or bringing in any influence Political or otherwise will be treated as a Disqualification".

GUJARAT AGRICULTURAL UNIVERSITY

SARDAR KRUSHINAGAR-385506

Distt. : Banaskantha

Advertisement No. 4/87

Applications on prescribed form are invited for the following posts in Gujarat Agricultural University. The candidates who fulfil the qualifications and desire to apply may sent their application forms alongwith six copies of authenticated bio-data through proper channel to the Registrar, Gujarat Agricultural University, Sardar Krushinagar-385 506, Distt. Banaskantha.

Name of the Post and Pay Scale	Discipline
1. **Professor/Research Scientist and its equivalent—** Rs. 1500-60-1800-100-2000-125/2-2500 plus other allowances as per University rules.	A. **Faculty of Agriculture** Agricultural Entomology, Cytogenetics.
	B. **Faculty of Veterinary Science and Animal Husbandry** Veterinary Surgery, Veterinary Pathology.
	C. **Faculty of Agricultural Engineering and Technology** Farm Engineering, Soil and Water Engineering, Product Processing Engineering, Electrical Engineering, Mechanical Engineering, Rural Engineering.
2. **Associate Professor/ Associate Research Scientist/ Associate Extension Educationist** Rs. 1200-50-1300-60-1600-Assessment-60-1900 plus other allowances as per University rules.	A. **Faculty of Agriculture** Agronomy, Agricultural Chemistry and Soil Science, Horticulture, Plant-Breeding and Genetics, Agricultural Entomology, Plant Pathology, Extension Education, Agricultural- Statistics, Plant Physiology and Ecology, Agricultural Economics, Agricultural Meteorology, Nematology, Cytogenetics, Agrostology, Agricultural Forestry, Silvi pasture, Agricultural Virology, Rural Sociology.
	B. **Faculty of Veterinary Science and Animal Husbandry** Veterinary Anatomy, Animal Physiology, Live stock Production and Management, Animal Genetics & Breeding, Veterinary Surgery, Veterinary Pathology, Veterinary Microbiology, Veterinary Pharmacology, Veterinary Medicine, Veterinary Public Health, Poultry Science, Veterinary Clinic, Animal Science, Animal Nutrition.
	C. **Faculty of Agricultural Engineering and Technology** Electrical Engineering, Farm Machinery and Power Engineering, Agricultural Processing Engineering, Mechnical Engineering, Agricultural Engineering.
	D. **Faculty of Basic Science and Humanities** Microbiology, Biochemistry, Ornithology.

Application forms alongwith details regarding qualifications, experience and other terms and conditions for above posts can be had upto **25-5-87** from the Registrar, Gujarat Agricultural University, Sardar Krushinagar-385506, Dist. Banaskantha on cash payment of Rs. 2/- (Money order will not be accepted) or by sending crossed Indian Postal Order of equal amount issued in favour of "Comptroller, Gujarat Agricultural University, Sardar Krushinagar", alongwith the self addressed envelope (23 x 11 cms) affixed with Rs. 2.20 paise postage stamps.

The applications duly completed in all respects should reach the Registrar at above address on or before **05-6-87** invariably through proper channel.

The candidates already in the service of this University may also apply through their respective officers in prescribed form with six copies of authenticated bio-data without I.P.O. All candidates called for the interview will have to attend the same at their own cost. Kindly note the following instructions:—

(1) Incomplete applications will not be considered.

(2) The University reserves its full right to fill up or not to fill up any or all the posts and to give or not to give appointment to the candidate selected by the Selection Committee.

(3) Canvassing in any form will completely disqualify a candidate.

(4) Selected candidates for above posts or category is transferable at any campus or centre of the University and between Education, Research and Extension activities/Project and will have to resign from previous employment.

(5) The candidates who fulfil above qualifications and experience and who have applied in response to the Advertisement No. 4/85 dated 5-7-1985 will have to apply again without necessary fees.

REGISTRAR

CENTRAL MINING RESEARCH STATION, DHANBAD

(Council of Scientific & Industrial Research)

CORRIGENDUM

Advertisement No. 1/87

Group No. III, Scientist 'B' Post No. 13

Essential Qualification may be read as First Class B.E. (Civil/Mining)/First Class M.Sc. (Geology).

KARNATAKA REGIONAL ENGINEERING COLLEGE SURATHKAL (D.K.)

P.O. Srinivasnagar-574157

KARNATAKA STATE **Dated : 15-4-1987**

WANTED

Posts	*Pay Scale*	*Total Salary in the minimum grade*
1. **Professor**—3 Posts	Rs. 1500-2500	Rs. 3,474.70
(i) Civil Engg. : 1		
(ii) Chemistry : 1		
(iii) Computer Engg. : 1		
2. **Assistant Professor**—7 Posts	Rs. 1200-1900	Rs. 3,014.60
(i) Geology under the Civil Engg. Deptt. : 1		
(ii) Mechanical Engineering : 1		
(iii) Mining Engineering : 2		
(iv) Chemistry : 1		
(v) Computer Engineering : 2		
3. **Lecturer**—6 Posts	Rs. 700-1600	Rs. 1,924.20
(i) Electronics & Communication Engg. : 1		
(ii) Mechanical Engineering : 1		
(iii) Physics : 1		
(iv) Computer Engg. : 3		

Apply in the prescribed form on or before **8-6-1987.** The prescribed form along with details of qualification and instructions can be had from the College Office by sending a crossed Indian Postal Order worth Rs. 2/- in favour of the Principal, K.R.E. College, payable at Srinivasnagar P.O. along with a self addressed envelope of size 25 x 10 cms. affixed with postage stamp of Rs. 1.80. Application received on plain paper and after the stipulated date will not be considered.

T. Ramchandran
PRINCIPAL

BHARATHIAR UNIVERSITY

COIMBATORE 641 046

Advertisement No. 2175/E1/87
Dated : 27-4-87

Applications are invited for the following posts :

I. Deptt. of Computer Science :

1. Reader :

No. of Posts : 2 (OC-1; SC/ST-1)

Qualification & Experience

(A) A Consistently good academic record

(B) A Ph.D. from an Indian or a Foreign University in Computer Science

OR

Computer Applications Information Systems

OR

Engineering with specialisation in Computer Applications and Information Systems and 5 years of Teaching/Research Experience in the Field of Computer Science or Computer Applications.

OR

M.E./M. Tech. with Computer Specialisation or M.C.A. with 7 years of Teaching/Research Experience in the field of Computer Science or Computer Applications.

Candidates with research interest in Systems Support/DBMS/Experience in Software deign would by preferred.

Maximum Age as on 1-4-1987
45 years.

Scale of Pay

Rs. 1200-50-1300-60-1900. (U.G.C.)

2. Systems Analyst

1 Post (SC/ST)

Qualification & Experience

(A) A first Class M.E./M. Tech in Computer specialisation with at least two years of Proven Experience in Business/Industrial Software design, development and implementation.

OR

A First Class M.Sc. (Applied Mathematics) M.Sc. (Statistics) with at least three years of proven experience in Business/Industrial Software design, development, and implementation.

(B) Knowledge of FORTRAN, BASIC, COBOL, PASCAL essential and 'C' preferable.

Maximum Age as on 1-4-1987
35 years.

Scale of Pay

Rs. 700-40-1100-50-1600. (U.G.C.)

3. Key Punch Operator/Systems Operator

2 Posts (OC-1, SC/ST-1)

Qualification & Experience

(A) A II Class Bachelor's Degree

OR

Diploma in Engineering

OR

Diploma in Commercial Practice.

(B) At lesst 6 months of experience in operation of mainframe/mini Computer Systems.

(C) Knowledge of typewriting, Programming language and experience in HCL-System 4 preferable.

Maximum Age as on 1-4-1987
30 years.

Scale of Pay

Rs. 610-20-730-25-955-30-1075.

(Tamilnadu Government Scale of Pay)

Any candidate applying for more than one post shall send separate application for each post.

Application form can be had from the Registrar, Bhạrathiar University, Coimbatore-46 on requisition accompanied by a self addressed Rs. 1.40 paise stamped envelope (25cm x 10cm). Name of the post for which the application is intended shall be specified in the requisition.

Attested copies of certificates showing qualifications, age, community experience etc., should be sent along with the application in the prescribed form (in Eight Copies) together with Registration fee of Rs. 10/- in the form of crossed Indian Postal order dated not earlier than **1-4-87** drawn in favour of the Registrar, Bharathiar University, Coimbatore 641 046.

Candidates in serivce shall submit their application through proper channel. Completed applications should reach the Registrar on or before **29-5-87.**

Incomplete applications and applications without the required registration fee will not be considered.

In case SC/ST candidates with suitable qualification and experience were not available, other candidates will be considered against these vacancies.

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY : KANPUR

Advertisement No. 4/87

Applications are invited for the following posts :

1. Senior Technical Assistant

Scale : Rs. 650-960)

(a) **For Aeronautical Engg. and Electrical Engg. Departments :**
(2 posts—Reserved for SC candidates.)

Qualifications and Experience

Diploma in Electronics/Electrical Engineering with 8 years experience either in operation of electronic test equipments, handling of semiconductor devices including integrated circuits, fabrication and testing of electronic circuits and maintenance and servicing of analog/digital electronic equipments or operation and maintenance of instrumentation system such as x-ray generators, electron microscopes, lasers, microprocessor based systems etc.

(b) **For Aeronautical Engg. Department**
(1 post—Reserved for SC candidate)

Qualifications and Experience

High School + one year training from approved wrokshop/clubs+ 23 years experience including 5 years experience in maintenance and repairs of gliders+Glider Maintenance Engineer Licence in Cat 'A & 'B' to cover wooden and composite airframes. (The candidate should be below 45 years of age).

(c) **For Chemistry Deptt.**
(1 post—Reserved for SC/ST candidate)

Qualifications and Experience

M. Sc.+2 years experience in Chemical Analysis

OR

B.S.c. + 8 years experience in Chemical Analysis

(d) **For Central Airconditioning Unit**
(1 post—Reserved for ST candidate)

Qualifications and Experience

B.Sc./Diploma in Refrigeration and Airconditioning +8 years relevant experience,

OR

High School+ I.T.I. Certificate in Refrigeration and Airconditioning+13 years experience of which 6 to 8 years in Central Airconditioning Plants of capacity 600 tons and above.

2. Technical Assistant
(Scale : Rs. 425-800)

(a) **For Electrical Engg., Metallurgial Engg., Chemistry and Physics Departments and Advanced Centre for Material Science.**
(5 posts—2 Reserved for SC and 1 for ST candidates)

Qualifications and Experience

Diploma in Electronics/Electrical Engineering with 4 years experience either in operation of electronic test equipments, handling of semiconductor devices including integrated circuits, fabrication and testing of electronic circuits and maintenance and servicing of analog/digital electronic equipment or operation and maintenance of instrumentation systems such as x-ray generators, electron microscopes, lasers, microprocessor based systems etc.

OR

B.S.c. with Physics (for Physics Department only)

(b) **For Central Airconditioning Unit :**
(1 post—Reserved for ST candidate)

Qualifications and Experience

B.Sc./Diploma in Refrigeration and Airconditioning+4 years experience in Central Airconditioning Plants of total capacity of 300 tons.

OR

High School+I.T.I. Certificate in Refrigeration and Airconditioning+9 years relevant experience.

3. Senior Mechanic
(Scale : Rs. 380-560)

(a) **For Electrical Engg. Deptt.**
(2 posts—1 reserved for ST candidate)

Qualifications

Diploma in Electronics/Electrical Engineering.

(b) **For Liquid Nitrogen Plant**
(1 post)

Qualifications and Experience

High School and I.T.I. Certificate in turning/fitting/millwright/instrument mechanic+5 years relevant experience in the running of liquid gas plant vacuum techniques, refrigeration equipments etc.

4. Mechanic

(Scale : Rs. 260-430)

(a) **For Aeronautical and Mechanical Engg. Departments:**

(2 posts—reserved for SC candidates)

Qualifications and Experience

High School + I.T.I. Certificate in the trade of fitter/turner/mechanics (millor/instrument mechanic

OR

Association of Indian Universities

16 Kotla Marg, New Delhi-110002

Application from Indian citizens for the following posts are invited in the prescribed form available on payment of Rs. 2/- from the office of the Association of Indian Universities, 16 Kotla Marg, New Delhi - 110002.

1. **Research Officer** (One) : Revised Scale Rs. 3000-4500.

"A first class postgraduate degree in Science/Mathematics or a High Second Class in Language/Humanities with or at least 7 years of experience of research in the area of examinations in colleges/universities, including mass conducted exams, admission tests and computer applications."

Deputationists from Universities/Colleges will be preferred.

Desirable : Good knowledge and experience of computer applications in university administration.

2. **Senior Cultural Officer** (One) : Revised Scale Rs. 3000-4500.

"Master's degree from a recognised institution/University. Five years experience with a minimum of two years in youth/organising/cultural activities at universities/colleges/other organisations. Incumbent will be responsible for administration of cultural activities at Inter-University/National/International Levels. Deputationists from University/Colleges will be preferred.

All posts carry allowances generally at the Central Govt. rates. Total Emoluments at the initial of the revised scale Rs. 3000-4500 at current rates of allowances etc. are Rs. 4390/- p.m. both for Research Officer and Senior Cultural Officer.

Relaxation in any of the requirements may be made in exceptional cases. The Association reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant. Canvassing in any form by or on behalf of a candidate will be a disqualification.

Applications complete in all respects should reach the Office by **30 May 1987**. Applications received after the last date or without complete information may not be entertained. SC/ST/Ex-servicemen will be given preference.

8th calss+I.T.I. Certificate in the trade of fitter+2 years relevant experience.

(b) **For Graphic Arts Section :**

(1 post)

Qualifications and Experience

High School+3 years experience in negative processing, printing, enlargement & outdoor photography.

5. Laboratory Assistant

(Scale : Rs. 260-430)

For Physics Department

(1 post —reserved for SC candidate)

Qualifications and Experience

High School and I.T.I. Certificate in relevant trade. OR

High School (Science) + 3 years experience in scientific laboratory work.

6. Senior Professional Assistant :

(4 posts including 2 posts for night shift— 2 reserved for SC candidates)

(Scale : Rs. 550-900)

Qualifications and Experience

First or Second Class Master's Degree with a First or Second Class Degree or Diploma in Library Science.

7. Physical Training Instructor Grade I

(1 post—reserved for S.C. failing S.T. candidate)

(Scale : Rs. 650-960)

Qualifications and Experience

Graduate with Diploma in Physical Education/Bachelor's Degree in Physical Education and NIS Coaching Certificate+5 years experience as Physical Training Instructor/Coach.

Qualifications/Experience may be relaxed by Selection Committee in case of candidates having more experience/higher qualifications. All the posts are permanent and carry allowances according to Institute rules which at present correspond to those admissible to Central Government employees stationed at Kanpur. The scales of pay mentioned above are likely to be revised soon.

HOW TO APPLY

(a) Applications for the posts of Senior Technical Assistant, Technical Assistant, Senior Professional Assistant, Physical Training Instructor Grade I should be made on prescribed form obtainable free of cost by sending self addressed envelope of 25×10 cm size.

(b) For remaining posts applications should be made on plain paper stating (i) Name (ii) Father's Name (iii) Date of birth (iv) Post applied for (v) Address (permanent and Mailing) (vi) Educational and professional qualifications giving division and percentage of marks obtained in each examination (vii) Whether belongs to SC/ST (viii) Details of experience alongwith a crossed Indian Postal Order of Rs. 3/- payable to the Registrar, Indian Institute of Technology, Kanpur at IIT Kanpur Post Office. **SC and ST candidates are not required to send IPOs.**

APPLICATIONS ADDRESSED TO ADMINISTRATIVE OFFICER, RECRUITMENT SECTION, ROOM NO. 483, FACULTY BUILDING, IIT KANPUR, KANPUR 208016 SHOULD REACH **LATEST BY 20 MAY, 1987.**

MALAVIYA REGIONAL ENGINEERING COLLEGE, JAIPUR

Applications on plain paper giving details regarding name and address, date of birth, fater's name and address, examination passed with division/percentage obtained, any relevant experience along with a pass port size photo and copies of the certificates are invited by the Registrar, Malaviya Regional Engineering College, Jaipur-302 017, within 21 days of the publication of this advertisement for one Research Fellow having stipend of Rs. 1000/- p.m. (Fixed).

Qualifications

M.Sc. (Physics) or B.E. (Electrical/Electronics Engineering) with a good academic career. This post is for three years subject to satisfactory progress of the candidate on yearly basis. The candidate will be required to work under Prof. Raj Kumar Gupta for the Project "On Study of Microwave Properties of Different types of Desert Soil available in Rajasthan with a view to explore underground wealth in the State" supported by the Department of Science and Technology, Government of Rajasthan.

REGISTRAR

DOCTOR HARISINGH GOUR VISHWAVIDYALAYA, SAGAR

No. Estt./R-1/87/8123 Dated: 25-4-1987

CORRIGENDUM

In the Advertisement No. R. 1 of 1987 Dated 9-4-87 of this University the part relating to the posts of Professors in Philosophy be corrected and read as follows :

"Professors—Philosophy : 2

(One in Indian Philosophy and One in Philosophy of Science/Modern Philosophy)"

R.N. Dhawan
REGISTRAR

INDIAN INSTITUTE OF SCIENCE

BANGALORE-560 012

Requires

Senior Scientific Officer (Two Posts) : (in the Post-doctoral Programme on Biotechnology and Life Sciences sponsored by the Department of Biotechnology) in the Department of Biochemistry and Molecular Biophysics Unit.

Ph.D. in area of Biological Sciences with atleast 3 years of Post-doctoral research experience using any of the following technologies:-

Recombinant DNA Hybridoma, animal and plant cell and tissue culture.

Emoluments : Rs. 2,965.00 p.m. (Approx.) in the scale Rs. 1100-1600. Grade likely to have upward revision when IV Pay Commission recommendations become effective.

The Programme is upto **31st July, 1991.**

Details and prescribed application forms can be obtained on request accompanied by a crossed postal order for Rs. 5/- (free of cost to SC/ST on production of Caste Certificate from a competent authority) drawn in favour of 'REGISTRAR', Indian Institute of Science, Bangalore - 560012 along with a self addressed stamped (Rs. 5.40) envelope of the size 28 x 18 cms **on or before 22nd May, 1987.**

R(IA)308-21/87 REGISTRAR

GULBARGA UNIVERSITY

Administrative Office, "Jnana Ganga" Gulbarga - 585 106

No. GUG/ADM/EST/(T)/87-88/RPA/13

Dated : 27th April, 1987

ABSTRACT NOTIFICATION—1

Applications in the prescribed forms (**in Eight Sets**) are invited from qualified candidates of Indian Nationality for the following posts in the Gulbarga University. The applications together with necessary documents should reach the Registrar, Gulbarga University, Gulbarga-585 106 by Registered Post with Ack. Due on or before **27th May, 1987.**

IF SUITABLE PERSONS BELONGING TO SCHEDULED CASTE AND SCHEDULED TRIBE OR OTHER BACKWARD CLASSES ARE NOT AVAILABLE FOR BEING SELECTED FOR THE VACANCIES RESERVED FOR THESE CATEGORIES, SUCH VACANCIES WILL BE FILLED UP BY SELECTION OF CANDIDATES FROM OTHER RESERVED OR GENERAL MERIT CATEGORIES AS PER GOVERNMENT ORDERS.

	Post Graduate Department Subject	*No. of Vacancies*	*Post reserved as per roster*
	1	2	3
1.	**Kannada**		
	Professors	02	S.C., S.T.
	Readers	04	S.C., S.T., G.M., Gr. A.
	Lecturers	06	S.C., S.T., G.M., Gr. A., Gr. B., S.C.
II.	**English**		
	Professors	02	S.C., S.T.
	Readers	02	S.C., S.T.
	Lecturers (One post for specialisation in language).	02	S.C., S.T.
III.	**Hindi**		
	Lecturer	01	S.C.
IV.	**Marathi**		
	Reader	01	S.C.
V.	**Zoology**		
	Lecturer	01	S.C.
VI.	**Mathematics**		
	Professor	01	S.C.
	Readers	04	S.C., S.T., G.M., Gr. A.
	Lecturers	02	S.C., S.T.
	Statistics		
	Reader	01	S.C.
	Lecturer	01	S.C.
VII.	**Chemistry**		
	Professor	01	S.C.
	Reader (Inorganic)	01	S.C.
	Lecturers (Inorganic, Bio-Chemistry).	02	S.C., S.T.
VIII.	**Applied Electronics**		
	Professor	01	S.C.
	Reader	01	S.C.
IX.	**Microbiology**		
	Professor	01	S.C.
	Lecturers	02	S.C., S.T.
X.	**Physics**		
	Professor	01	S.C.
	Reader	01	S.C.
	Lecturers	02	S.C., S.T.
XI.	**Mineral Processing**		
	Reader	01	S.C.
	Lecturers (Chemical, Engineering, Metallurgy, Electrical Engineering, Mechanical Engineering, Mathematics, Statistics).	06	S.C., S.T., G.M., Gr. A., Gr. B., S.C.

XII.	**Mineral Exploration**		
	Lecturers (Drilling, Geo-Chemistry, Geology).	04	S.C., S.T., G.M., Gr. A.
XIII.	**Geology**		
	Lecturer	01	S.C.
XIV	**Commerce**		
	Lecturers	06	S.C., S.T., G.M., Gr. A., Gr. B., S.C.
XV.	**Political Science**		
	Professor	01	S.C.
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Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429. Telex 31 5578 AIU IN
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

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UNIVERSITY NEWS

VOL. XXV MAY 18
No. 20 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor:
SUTINDER SINGH

& DOCUMENTATION
UNIT
2 JUN 1987
F T R I, MYSORE

LEARNING TO BE

Niclau Pereira*

Inculcation of human values through curricular and co-curricular activities is the aim of any educational system. Our National Policy on Education, 1986, has the following to say: "The growing concern over the erosion of essential values and increasing cynicism in Society has brought to focus the need for readjustments in the curriculum in order to make education a forceful tool for the cultivation of social and moral values."

Ultimately, what is the purpose of education ? It is to make man a real man, to humanize him.

Now-a-days with technical progress, that has changed the pattern of human life, we speak so much of job orientation, relevance of education, that it gives the impression that we have forgotten that education has goals that are time independent.

It is good to remember that education has two types of goals: goals which do not depend on circumstances of time and space, but they are inherent to human nature, and goals which are determined by the historical variables, like culture of the country, needs, be they personal or national, economic productivity, etc.

The Catholic Church's document on education (*Gravissimum educationis*, Vat. II) accepts these goals when it says: "This education should be suitable to the particular destiny of the individuals, adapted to their ability, sex, and national traditions.... True education is directed towards the formation of human person in view of his final end and the good of that society to which he belongs and in the duties of which he will, as an adult, have a share." Other institutions committed to education also emphasize the same ideas.

And our National Policy on Education 1986 reiterates the same concept when it defines the essence and role of education: "Education has an acculturating role. It refines sensitivities and perceptions that contribute to national cohesion, a scientific temper and independence of mind and spirit...... Education develops manpower for different levels of the economy...."

Thus, we see clearly that two types of goals are to be achieved by education : Education contributes to help man to learn to become man, a man who has not only the maturity of his nature, but also who is capable to serve the community in which he lives according to the needs of culture, economy and human progress. These two types of goals to be attained by education are different, but these cannot be excluded in the learning process. One type of goals concerns the personality of the educand. These goals are not modern or new. They existed from the times when man realized that education was an important means to learn to be. The second type of goals concerns the usefulness of the education. They also existed together with the first type of goals. While the first goals were part of education at all stages, the second type kept on changing

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**Principal , St. Xavier's College,*
Mapusa - 403 525, *Goa.*

according to personal tastes and needs of the society. Not all like to become teachers, engineers or doctors. And when they decide to choose a career, the contents of education change according to time and human progress. In the holistic approach to education, these both type of goals have to be kept in sight, in order to make education meaningful.

Time Independent Goals

Education has definitely some goals which are inherent to it. Any system of education be it primary, secondary aims at attaining them. What is after all the aim of education? It is to give us an educated person. And what is an educated person? Gurudev Tagore wrote somewhere: "I do not put faith in any new institution, but in the individuals all over the world, who think clearly, feel nobly and act rightly, thus becoming channels of moral truth."

Education aims exactly at giving us such individuals or as somebody has said, to develop *three H's*: First, the head to think rightly and clearly, then the heart in order to be compassionate towards fellow beings and the entire nature, and finally the hands, that means to teach to act properly with education and wisdom. "Education", says Dr. Radhakrishnan, "aims at making us into civilized human beings, conscious of our moral and social responsibilities."

One who goes to a School or College or University may have different aims. He may like to become a scholar, a scientist, an economist, an engineer. But first and foremost he must learn to be a man, the complete, the whole man.

There is an anecdote which may give us a glimpse of what is to be an integral man.

Once a foreign-returned graduate with many degrees was crossing the creek to go to the city in a country boat. The boatman struck conversation with the gentleman during the passage, who in order to give him an idea of his education started putting the poor boatman different questions. Do you know how the stars, high above in the sky, have come. The poor boatman said: I do only seem them. God must have put them there. Oh no, you do not know anything about them. You have lost a quarter of your life with your ignorance. Do you know what is at the bottom of this creek, at the bottom of the seas, how the fish and all the rest come. I do not know. God knows it well. Oh there you are, continued the gentleman, you lost another quarter of your life with your ignorance. The boat started shaking. Then the boatman asked, Sahib, do you know to swim, if the boat capsizes? Oh no, replied the gentleman. Then I must say that if I have lost only half of my life, you run the risk of losing your whole life, retorted the poor boatman.

Yes, that is exactly what happens with the education when it loses sight of time-independent goals. Education has to give man a holistic view of life by enlightening his mind to discern what is right and wrong and endowing him with the moral courage to display in all his actions an intellectual integrity dictated by human values.

Bertrand Russel, praising the University of Oxford or Cambridge wherefrom he graduated, had said that he had got from his university the intellectual honesty. This means that his University had given him an ethos, or, in our language, *dharma*, or a set of human values which made his life or manhood valuable to himself and to others.

We expect that an educated person and specially a University educated person to be a gentleman. The definition of gentleman has been given in a very fine way by Cardinal Newman in his book *The Idea of a University*. Though many of us might have read the passage, it is worthwhile to repeat: "Hence it is that it is almost a definition of a gentleman to say he is one who never inflicts pain. This description is both refined and as far as it goes, accurate. He is mainly occupied in merely removing the obstacles which hinder the free and unembarassed action of those about him.... The true gentleman in like manner carefully avoids whatever may cause a jar or a jolt in the minds of those with whom he is cast—all clashing of opinion, or collision of feeling, all restraint, or suspicion, or gloom, or resentment, his great concern being to make every one at their ease and at home.... He never speaks of himself except when compelled, never defends himself by a mere retort, he has no care for slander or gossip, is scrupulous in imputing motives to those who interfere with him and interprets everything for the best. He is never mean or little in his disputes, never takes unfair advantage, never mistakes personalities or sharp sayings for arguments, or insinuates evil which he dare not say out....He has too much good sense to be affronted at insults, he is too well employed to remember injuries, and too indolent to bear malice. He may have a religion or not. In latter case his religion is one of imagination and sentiment, it is the embodiment of those ideas of the sublime, majestic, and beautiful without which there can be no large philosophy."

In order to have such a gentleman, education has to make the educand cultivate human values during his education.

Education is often compared to the blossoming of flower. The fragrance, the beauty is something that comes from within, but its evaluation comes from certain values or standards which enable us to call beautiful what is indeed beautiful and ugly what is ugly. So also with respect to human behaviour that differentiates persons as intelligent, gentleman, moron, boorish, cunning, devilish, etc., etc. We have a set of human values which permit us to evaluate what is really human and not human, or moral or immoral or amoral.

Radhakrishnan in his book *Religion and Culture* (Orient Paperbacks, Ed. 1968, Pgs. 75), has the following to say :"We are asked to choose. But man is tending to lose his creativity when he feels that nothing gets better, he cannot improve anything, his daily life is controlled by pressures and he hears from philosopher echoes of anxiety and despair. The changeless values of spirit, the pursuit of truth and practice of love which have nourished the great pages of history do not seem to be relevant to an age steeped in science, deserted by religion and deprived of even human ideals. We seem to have reached the height of irresponsibility"....

"The crisis that is facing us is not a material or an economic crisis. It is not an intellectual crisis. It is a moral and spiritual crisis."

Man is in constant communication with the world around him. And this communication is made in various ways: there is the simple sense perception. This sense perception can be raised to the category of knowledge, when he tries to relate the causes and effects. Pascal strikes this fact when he refers to the forces of nature that might crush man. They do not know what they are doing. But Man can know. Yet this knowledge is not sufficient. Education is not merely a source of knowledge and mastery of skills. Using Dr. Radhakrishnan (*Religion and Culture*, page 78) expression, I would say that education has "to remake our inward nature, conscientize us about the values of spirit which make for creative living, justice, freedom and equality."

I would say even that a person is not educated if humanism and wisdom have not become his possession.

An educated person has to have, as Cardinal Newman would say, "a cultivated intellect, a delicate taste, a candid, equitable, dispassionate mind, a noble and courteous bearing in the conduct of life; these are the co-natural qualities of a large knowledge; they are the objects of a University."

These human values are both caught and taught. They are caught from the environment, from the social ethos, from the learning society, a word coined by Robert Hutchins to express our desire to spread education to all the strata of society, that, "in addition to offering part-time adult education to every man and woman at every stage of grown up life, had succeeded in transforming its values in such a way that learning, fulfilment, becoming human had become its aims and all its institutions were directed to this end. This is what the Athenians did..... In Athens education was not a segregated activity, conducted for certain hours, in certain places, at a certain time of life. It was the aim of society. The city educated the man. The Athenian was educated by the culture, by paideia." (*Perspectives* II, pg. 741).

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Besides this symbiosis between man and environment, human values can also be taught when human behaviour and attitudes are analysed with Reason. Subjects like Ethics, Social Philosophy and Psychology, Natural Theology or Philosophy of Religion and Being throw much light on human nature and attitudes that have to be cultivated by man.

Human values are also reflected in subjects like Literature, Philosophy, History, Sociology, etc., i.e. in all subjects that are grouped as Humanities. Religion also contributes to a large extent to foster these human values.

"Man is intended for something greater than confinement in this world", so writes Dr. Radhakrishnan. "He can rise above it. He can defy nature. It is worng for us to think that we are victims of natural forces, that there is a kind to inevitability, that inexorable laws prevail, that man cannot help."

Scientific investigation, metaphysical quest and seach for an answer to the spiritual *angst* can provide us the light, or human values, to see the path that we have to tread on this world.

"Education", so writes Dr. Radhakrishnan, (Page 63), "must include the development of man's spiritual powers and help to build a harmonious, self-confident personality."

The curriculum has therefore to be complete by including all the subjects that help an integral development of the individual, or, as Jacques Maritain has said, contribute to the awakening of his mind.

Science, Mathematics no doubt, are required to be a part of the curriculum, but also humanities, religion, all that leads man to live life.

We are afraid that teaching of religion in schools and Universities can lead to Communalism. Are we not practising Religion in our society, in our daily life? Dr. Radhakrishnan, in his book *Religion and Culture*, says that we need a change of heart, a conversion of the soul, which can only be brought by religion. Religion is not a simple ritualism. It is the same metaphysical quest that had made our forefathers who wrote Vedas and Upanishads, to look for spiritual realisation: "Religion is not merely intellectual conformity or ceremonial piety. It is a change of consciousness, a rebornness, an inner evolution, a change of understanding: *The Upanishads* remind us of this change: "Lead me from the uneral to the real, lead me from darkness to light, lead me fron death to immortality".

Time Dependent Goals

Besides the time independent goals, education ha the purpose of developing some skills. Education has thus, to develop not only, to use the expression o Robert Hutchins, the manhood but also the manpower

Herbert Spencer lists the leading kinds of activit that, he says, constitute human life and for which the schools must prepare: They are: self-preservation securing the necessities of life, rearing and disciplin offspring, maintaining proper social and politica relations, and leisure, or the gratification of tastes and feelings."

In order to satisfy this activity, man has learned from the early stages of his life to tame the forces of nature. He has studied the nature of all that is around him and has learned to harness for his own advantage what the Nature had to offer him.

Science and technology is not something new that has appeared only in the last two centuries. What has been done in the modern age is that a wrong scientific methodology was corrected, and this gave new vistas and new avenues. At the same time the extent of application of human knowledge increased not two or threefold, but manifold. Thus we have explosion of scientific knowledge and technological applications with great impact on economic and social growth of the society. Education has therefore to make man capable of living in this new environment he has created for himself. Consequently, pursuit of knowledge for its own sake is not the only aim to be attained by education. We speak now of vocationalization at secondary level or professional education at the University education. Even the liberal education has been affected by this concept of utility or relevance.

Any human being cannot be an idle or unproductive consumer. He has to be a socially productive entity. Therefore, job-orientation or relevance of the courses to life is the answer to such a concern in education.

Education itself came to be regarded as the path to prosperity and power.

President Kennedy, in his message to the Congress in 1963, had stated: "The nation is committed to greater advancement in economic growth; and recent research has shown that one of the most beneficial of all such investments is education....In the new age of Science and Space, improved education is essential to give meaning to our national purpose and power. It requires skilled manpower and brainpower to match the power of totalitarian discipline. It requires a scientific effort which demonstrates the superiority of freedom."

Since education is to give skilled manpower, the contents of the courses have to be constantly revised in order to enable the students to meet the needs of the times.

But a note of caution has to be made. Nobody should think that the school can turn out finished experts that can take up immediately a job.

When the number of students is relatively large, the availability of a particular type of job may not correspond to the number of the trainees. Vocational or professional training has its own limitations. Fredrick Harbison and Charles A. Myers (*Education, Manpower and Economic Growth*, McGraw Hill, 1964, pg. 25) emphasize these limitations when they say that formal vocational training generally has been less successful and more expensive than on-the-job training or apprenticeship.

As Cowan, O'Connel and Scanton, who have made a deep study of the vocationalization or technical bias in Africa, point out, "there is no evidence that education will lead automatically to economic development. Only if education becomes part of a closely integrated and comprehensive plan for development, involving both governmental and private sectors of the economy and including all levels of society, can it play its full part in the African revolution."

In other words job-orientation or relevance of course has to be understood as awakening in the student the latent potential to be a productive citizen in the environment in which he lives and he might be capable of influencing.

Conclusion

As a conclusion, I must say that in the preoccupation of attaining these goals, we should not lose sight that educational goals are primarily those that are ime-independent.

Robert Hutchins has stated in a nice way: "An educational system that aims at understanding and development of personality will make the most impressive contribution to power and prosperity, whereas one that aims at power and prosperity will fail in that ambition, and fail as well to bring about understanding."

The benefits of education are multifarious. Human being is not like a robot that can do some tricks. Nor the mind is a receptacle to accumulate information. Information is not education. Education is what remains in us: Ideas, methods, habits of mind, ability to foresee, co-relate and judge. These are, as somebody said, the radioactive deposit left by education.

I would therefore suggest that ethical and spiritual education should be imparted as willed by the Kothari Commission and the present National Policy of Education at all stages of our education. Educational Institutions should be permitted to appoint teachers who are capable of imparting ethical and spiritual education. The hours and time that the teachers spend in ethical education should be counted for determining their workload. ☐

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3. *The Catholic School, Doc. of the Congregation for Catholic Education* (*Vatican*), *St. Paul Publications*, 1977.
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6. *Cardinal J.H. Newman —The Idea of a University, Image Books.*
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PROJECT METHOD IN EDUCATION

V. S. Patil*

Introduction

Education is a bilateral process—a learner or a student on one hand and an entity which facilitates the learning process on the other hand. In formal education this other entity has been mainly a teacher. The education system has its foundations in efficiency of a teacher and urge of a student or learner to learn. The teachers' efficiency has three aspects—his dedication, environment or facility in which he has to work, and innovations that he can make in his teaching technique. As far as teaching technique is concerned this has been equated as: Good teacher-Good lecturing ability. No doubt it is important for a teacher to be good at lecturing but it is not all.

Dominance of lecturing often results in student's passive attitude. He becomes more bookish, dependent, uncurious and indifferent. One has to evolve a method therefore, in which students will take part like question answer sessions, seminars, group discussions etc. These alternatives in teaching technique are used quite meaningfully. Teaching aids like charts, models, films and modern techniques, field trips, demonstration etc., can also be effectively used to make education more interesting. A project method is one such teaching technique and learning process. It covers all the important and valid aspects of education—a process of development ! It was first introduced in America and practised in various countries at different levels with very good results. Project can be defined in number of ways. According to Kilpatrich, Stevenson and Good, significant aspects of a project are:

(i) It develops self reliant learning habit.

(ii) It is self satisfying activity—as:

  (a) It is based on curiosity.

  (b) It develops creative and decision-making ability.

  (c) Students develop self-confidence, and get prepared to face 'real life' or 'natural' situations with critical and research oriented mind.

A project is thus one of the best teaching-learning processes in which students' active role is envisaged.

Stages in Project Work

Project work involves following five stages for its successful completion:

(i) Selection of the topic or problem.

(ii) Planning—method, material, persons involved, field visits, surveys experimentation with reference to time allocation.

(iii) Execution—actual working for the project.

(iv) Results and Discussion.

(v) Presentation.

All these stages are important and their salient features are as follows:

(i) Selection of Topic

The selection of topic has important link with level of students. The problem selected should not be too complex as we are dealing with graduate level students only. The problem should not be too simple either. This will result in casual approach to the project work. The problem should be significant and should keep the interests of the student constant or possibly increasing.

Students should feel that they were going to achieve something new or the experience of going through the process is refreshing.

Instead of direct supply of the problems it will be better that students are asked to select the topic of their own interest. Ask them to study in greater detail and discuss the probable problems that they find significant. This process will need good reference work, discussion and the students will be exposed to the whole process of project work. As student has selected his own problem, he will be morally bound to work.

(ii) Planning

Planning has two important aspects—one is practical view and the other is time span. Library facility, equipment, chemicals, resource persons' availability etc. be considered. Then tentative time allocation be given. For example :

(a) Introduction—Selection of Problem and Planning—20%.

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*Vice-Principal, Sangamner College, Sangamner-422 605.

(b) Execution—50%.
(c) Results in Discussion — Presentation—20%.
(d) Reserve timing 10% can be general outline. It will vary depending on the nature of the topic.

(iii) Execution

This is critical step of the project work. Student should work, get results, think, and try again. Teacher should play a side role or a role of a catalyst. Student will learn by experience. Teacher can give him a helping hand if needed in the course of his work and expertise in methodology or approach.

(iv) Results in Discussion

After satisfactory completion of the work both student and teacher will give serious consideration to the results obtained. Critical outlook and deep insight of the topic will be then developed. Analysis of results is important at this stage.

(v) Presentation

Project work should be presented in the form of project report. Neat, clean, systematic, attractive etc. are the features that are necessary for the report. The details can be worked out easily. It will of course have all the earlier stages as important sections.

Whatever is explained so far can better be substantiated by actual examples. The examples are chosen in such a way that all will find of interest and understanding.

3. Examples

(a) To Measure the Diameter of Capillary

It can be done by moving microscope. Number of readings will be taken and the average diameter can be calculated. One can use a novel method for the purpose. One can fill the capillary with mercury. Measure the length of mercury column. Take mercury out and weigh it. By simple mathematical formulae one can get the diameter. Student can repeat the procedure and finalise. Why mercury is used ? How to handle it ? etc., will be the experiences that will go a long way.

(b) Use of Natural Colours for Titrations

Titration is one of the major quantitative techniques used for volumetric analysis in Chemistry. It gives an idea of unknown concentrations. Indicators are used to follow these titrations. Colour change of indicators is noted. Instead of using indicators students will be asked to use natural colours in the titration technique and observe. This will include jambul juice, colour extract of flowers and alike.

(c) Language Used in Science Textbooks for Communication

The paragraphs in Science texbooks can be studied and can be analysed as to its difficulty level. It is observed that the language used is difficult and simpler language can be used effectively and can be accepted well by students. The transformation of paragraphs then can be done for one unit or so. This becomes interesting.

(d) Tomato Marketing in Sangamner Taluka

Sangamner Taluka produces large quantity of tomatoes. The student can be assigned a project relating to its marketing—general or one of its aspects in detail.

(e) Analysis of Water

Water from various sources will be collected by student. Well water, river water, pond water, tap water etc. It can be then analysed for one component say calcium. Correlation can be done afterwards.

Soil analysis, food analysis will also serve as a source for large number of projects of this type.

(f) Special Features of a Region in Terms of Spoken Language

One can study the local language—proverbs, phrases, words, construction of sentences and alike and form a project study.

The examples can be many, one should be alert and application oriented. The teaching aids—preparation of charts and models for effective teaching can also be the subject for projects. ☐

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Qualification : A good Master's degree in Mathematics. B.Sc. graduates of exceptional merit will also be considered. Students who have just appeared for a degree examination this year may also apply.

Final selection will be made on the basis of an interview to assess the aptitude for research.

Selected students will be paid an honorarium of Rs. 1400/- per month. The admission will be initially for a period of one year during which introductory courses on basic areas of mathematics will be given. The continuation of the research scholarships beyond one year **will depend on the assessment of the student's abilities at the end of the year**. A second assessment will be made at the end of the second year based on which the student may be offered a further extension of his scholarship at a possibly enhanced level or a Research position for 3-5 years. There are possibilities of research appointments at higher levels for outstanding students after completion of their Ph.D's.

Applications in the form of a resume giving the particulars listed below accompanied by attested copies of testimonials pertaining to the mathematical ability of the candidate from two teachers closely acquainted with the work of the candidate and a recent passport size photograph should reach the Administrative Officer (Establishment), Tata Institute of Fundamental Research, Homi Bhabha Road, Bombay 400 005 not later than **June 1, 1987.**

1. Name
2. Date and Place of Birth
3. Address
4. Nationality
5. Academic qualifications with year of passing division/class, name of institution attended (Attested copies of mark lists should be enclosed).
6. Previous experience, if any, giving designation and the scale of pay of posts held, names and addresses of previous and present employers, number of years served, present emoluments, in chronological order.
7. Details of published research work, if any.

Candidate called for interview will be paid $1\frac{1}{3}$ railway fares each way by the lowest class as also a sum of Rs. 35/- as halting allowance for the day on which he/she is interviewed. Applicants already in Govt./Semi-Govt./Public Sector Undertaking services must apply through proper channel. Only such candidates who are called for interview will be informed of the results and no correspondence of any kind will be entertained.

Convocation

Education and Scientific Revolution

"Unless teaching in a school is effectively considered as important as teaching in a university, and work in a class room, library and laboratory as important as that in a government secretariat, an education and scientific revolution may not occur", said Prof. K. Satchidananda Murty, Vice-Chairman, University Grants Commission, while delivering the Convocation Address at the Bharathiar University Convocation. "Radical transformation", he said, "will not be achieved unless prevalent values and attitudes change". He pleaded for a change in the value system that accords respect to persons with financial, political or administrative power and ushering in its place, an era where the creative and dedicated work of scientists, scholars, litterateurs and artists is held in highest esteem. Excerpts :

When one, however, takes a critical look at education and science in India as a whole there is little scope for complacency. A considerable number of our universities and colleges are imparting not only sub-standard education, but are "notorious for rampant casteism, regionalism and inbreeding", and "have become virtual battlefields in which political and other factions, backed by teachers and aided by other staff, often fight pitched battles for power and supremacy". The efforts of the NCERT, NIEPA and UGC "to improve the content and quality of education, modifying priorities and objectives, and correlating the quantitative and qualitative output of educated manpower with the requirements of these for various tasks connected with national production and development, have not succeeded." (*Challenge of Education—A Policy Perspective*, Ministry of Education, New Delhi, 1985, pp. 47-8, 61-2). While these comments apply to *some* of the universities and colleges which are established and/or supported by the Central Government, they do not apply to *some* of the universities and colleges established and supported by the state governments. Only a few days back an eminent scholar, who worked for decades in a central university and has occupied with distinction very high positions in public life, education and science administration, diplomacy and government, and continues to do so, told me that only one central university would be among the five best universities in the country.

Moreover, some of the organisations which owe nothing to state governments and are not dependent on them have not distinguished themselves. The recent report of the experts' committee which reviewed the CSIR declared it to be an "unwieldy organisation" lacking focus or direction and suffering from "a crisis of identity". According to the report, "science in CSIR has perished while a few scientists have flourished", and it "has tended to foster hierarchy or bureaucracy and stifle creativity". ("Times of India", 2-3-1987). Similarly, the concerned minister did not express satisfaction regarding the functioning of AIIMS : he commented that it has not been as accountable as it should have been to the needs of society and that whatever newer patterns of teaching and higher standards of medical education it might have developed have not been properly disseminated. ("Times of India", 13-3-1987). In the same way, the concerned minister of state has charged the ICAR with failure to create a suitable environment for scientists to produce their best. Its research management, according to him, was based on lop-sided priorities; and its research output vis-a-vis its very large scientific strength, he declared, has to be reviewed. ("Times of India" 15-3-1987). The report on the basis of the review of workings of IITs has also recently come out, and they have not received any high encomiums in it.

According to that report, their achievements do not seem to be entirely commensurate with their vaunted prestige, the public money spent on them and the aid and support they received from abroad. If it is presumed that these reports and comments are more or less fair and objective, education and science in India as a whole are not as they ought to be. It is doubtful whether reviews of the workings of the Councils for researches in social and humanistic sciences would be much more favourable; these organisations and the disciplines they deal with also may be faring no better.

The *National Policy on Education-1986* and its *Programme of Action* [HRD Ministry (Department of Education), New Delhi, May & August 1986] have fixed the objectives relating to education at all levels as well as described the means for achieving them.

The reports of the Review Committees on various Councils and Institutes have outlined the measures to be taken to improve their workings, or will do so in due course. In the budget for 1987-88 the Prime Minister has allocated Rs. 800 crores for education as against an allocation of Rs. 352 crores in 1986-87, and has rightly claimed that it was "a measure of government's resolve to bring about an educational trans formation in our country'. But, unless the state governments use the larger quantum of central financial assistance in addition to their own budgetary allocations, the increase in the central budget will not make the requisite impact. The Prime Minister has done what he could to help implement the New Education Policy ratified by the Parliament. We have fortunately a fine, scholarly and sensitive mind in charge of the Human Resource Development Ministry. It remains to be seen how the state governments, the civil servants in New Delhi and state capitals, the heads of commissions and councils and education and science administrators at various levels, will implement and monitor the Policy with the resources to be made available, and how our teachers, scholars and scientists will utilise this opportunity.

Radical transformation, it must be said, will not be achieved unless prevalent values and attitudes change. Today in India it is the persons with financial, political or administrative power who have material advantages and command respect, and not the scientists, scholars, literary men and artists. It is the vice-chancellors, directors, chairmen and members of commissions and councils and those in charge of educational, scientific and cultural establishments who are considered more important than even reputed scientists, scholars, litterateurs and artists; and much more important than the former are the men in the administrative service. What the Prime Minister told the Lehmann Professor of Economics at Columbia University is a fact : "Vice-Chancellors have to stand outside a Deputy Secretary's office for a whole day for an appointment". (*Frontline*, Madras, May 31 - June 13, 1986, p. 44). And the fate of a scientist or scholar seeking an appointment with a Vice-Chancellor, director, director general or a chairman, is not much different. Consequently, the ambition of most scientists or scholars is to attain the status equal to that of secretaries, or at least, additional or joint secretaries to government. No wonder a distinguished nuclear scientist is reported to have said that as one cannot have either freedom or prestige without being a secretary to government, he had attempted and succeeded in becoming one. Unless attitudes and values of this sort of change and the status and emoluments of our teachers, scholars and scientists become equal to those in the Indian administrative service, devotion to teaching and learning cannot be exacted. Our Commissions, Councils, universities, colleges and other establishments have to be debureaucratised, made autonomous and run only by those who teach and investigate. Unless teaching in a school is effectively considered as important as teaching in a university, and work in a class room, library and laboratory as important as that in a government secretariat, an education and scientific revolution may not occur.

Contemporary Indian works in any science—humanistic, social or natural—is by and large not creative. The reason for this is our schools, colleges and universities do not set minds free. "The fundamental drawback of our present education system", our Prime Minister rightly observed "is the absence of the questioning spirit." The hallmark of the product of a good school is "non-conformist personalities working together as a team for a greater cause." (His speech at Dehra Dun on 3.11.1985. *The Hindu*, 4.11.1985). Studies of the creative work of those who brought about mutations in the history of thought have shown that intense scepticism towards traditional ideas, axioms and dogmas and complete openmindedness are its common features. Without them a familiar object, situation, problem or data cannot be seen in a new light or context, and relations, patterns or functional analogies not seen by anyone before cannot be seen.

One of our medieval scientists (Ramachandra in *Rasendrachintamani*) stated that he discarded everything he could not verify by experiment, even if it was taught by learned men. Real teachers, according to him, are those who have verified by experiments what they teach. Another (Yasodhara in *Rasaprakasasudhakara*) declared he wrote only that which was based on his conviction and observation and not on hearsay. And Aryabhata proclaimed that he relied on two things only : the grace of God and the use of his own intelligence. (*Aryabhatiyam*) Our best philosophers relied on their own experience and reasoning, accepting what was believed to be revelation or tradition only when it was not contradicted by the former. The Buddha was an Ehipassika, i.e. one who taught 'come and see for yourself'. Nagarjuna was able to formulate his philosophy only by setting at naught the brahmanical tradition and sastras of his father and fore-fathers. Sankaracharya did not totally accept the authority of any previous commentator of the Upanishads and Brahmasutras; his greatest contribution was the emphasis he laid on enquiry, personal experience and logical reflection on it. Ramanujacharya disputed and demolished his own teacher Yadavaprakasa's interpretation of the Upanishads. Indian thinkers and scientists of yore had open, critical and questioning minds; so that they could be creative. We should cultivate and foster this spirit.

As a great Indian philosopher Abhinava Gupta said !

> Urdhvordhvamaruhya yadarthatattvam
> dhih pasyati srantimavedayanti,
> phalam tadadyaih parikalpitanam
> vivekasopanaparamparanam

It means : Reason can behold truth tirelessly climbing higher and higher on the ladder of discriminative thinking, the steps of which are constituted by the successive doctrines formulated by earlier thinkers. (Comm. on Bharata) ☐

Physical Fitness and Sports Standards

A two-day National Seminar on "Phiysical Fitness & Sports Standards in Universities" was organised by the Association of Indian Universities (AIU) in collaboration with the Sukhadia University, at Udaipur on 9-10 May, 1987. The seminar was inaugurated by Dr. K.L. Shrimali, former Union Education Minister and Vice-Chancellor, Banaras Hindu University. Over 70 delegates from different universities all over the country attended the seminar. Shri K.P. Singh Deo, MP, was the chief guest at the Valedictory function which was presided over by Shri Arvind Singhji "Mewar". Dr. K.N. Nag, VC, Sukhadia University, Dr. M.L. Mathur, VC, Jodhpur University, Shri L.D. Kataria, VC, HAU and Shri R. Gopalaswamy, Seceretary, Department of Youth Affairs & Sports, Government of India, also participated in the deliberations of the seminar. Shri Charanjit Singh (HP University), Dr. M. Robson (Annamalai) and Dr. T.S. Brar (LNCPE, Gwalior) were the resource persons.

Discussions at the Seminar were held at five sessions dealing with (i) Sports Infrastructure in Rural and Urban Areas; (ii) Student Motivation and Incentives; (iii) Coaching and Competitions; (iv) Linkages between Sports and General Education; and (v) Norms of Physical Fitness. The following recommendations emerged at the Seminar :

I. Sports Infrastructure in Rural and Urban Areas

Keeping in view that the National Policy on Education—1986 has stated that the sports and physical education are an integral part of the learning process, the subject will be included in the evaluation of performance and a nation-wide infrastructure of physical education and sports will be built in the educational edifice, it is recommended that for allocation of funds for the development and promotion of infrastructure of sports facilities by the UGC

(i) A survey of the existing sports facilities in the universities and colleges be conducted identifying their location in the urban areas, rural areas, hilly areas and plains. The survey may be conducted by AIU.

(ii) A minimum unit of facilities required for a university and a college keeping in view the geographical location as stated under (i) above and also the student enrolment may be worked out. UGC may be requested to undertake this exercise.

(iii) A group of games like Athletics, Hockey, Football, Basketbal, Volleyball, Wrestling, Kabaddi, Kho-Kho, etc. which are popular in the rural areas and where the cost of construction of infrastructure of sports facilities, equipment, etc. is comparatively much less should be identified and the facilities required for these games should be created and developed on priority basis as compared to games like Tennis, Badminton, Cricket, Golf, etc. These games may be identified by AIU and forwarded to UGC for necessary action.

(iv) In future while granting recognition to the universities/colleges by the UGC/AIU availability of sports facilities as in the case of academic facilities should be taken into account. Universities and Colleges already recognised and not having the minimum sports facilities, should be urged to acquire and develop such facilities within a period of 5 years. UGC may be requested to pursue the matter with the concerned colleges. Similar action may be taken by AIU in respect of the universities in this category affiliated to AIU.

(v) On account of constraints on financial resources, the development of and creation of sports facilities in universities and colleges should be taken up in a phased manner specifying the target for each span of time.

(vi) Department of Youth Affairs and Sports may be requested to float a new scheme of funding recurring programme of sports activities so that the facilities created and developed for this purpose are utilised to the maximum possible.

(vii) The Department of Youth Affairs and Sports and UGC may be requested to consider that AIU may be consulted while considering allocation of funds for the various schemes operating in the field of sports in the university sector.

(viii) AIU should prepare guidelines as regards the specifications of various sports facilities.

II. Student Motivation and Incentives

(i) Sports should be introduced as a course of graduation studies in the multi-faculty colleges and universities. Where this is not possible, at present, sports should be introduced as an elective subject for the degree course.

(ii) Performance in sports should be taken into account in academic performance. Uniform norms of minimum achievements in this behalf may be worked out by UGC in consultation with AIU, SAI and NS NIS.

(iii) The Department of Youth Affairs and Sports may be requested to extend the scheme of Sports Telent Scholarships (STS) operating at the Inter-University level to university level and college level as in the case of schools.

(iv) Sports persons participating in Inter-University Tournaments, National Level Tournaments and International Tournaments should be given concession in terms of class attendance. The universities may be requested to take appropriate action in this behalf.

(v) Financial assistance should be provided to outstanding sports persons as freeships in the shape of special diet, kits, purchase of equipment allowances, etc. The Department of Youth Affairs and Sports may be requested to allocate necessary funds for the purpose.

(vi) Arrangements of extra coaching and, wherever necessary, for holding special examinations may be made for sportspersons excelling at the national and international level. Universities may be requested to take suitable action in this behalf.

III. Coaching and Competitions

(i) NIS may be requested to examine the duration and the syllabi of the present coaching courses and consider the possibility of extending the duration of the coaching courses to a degree course of three years duration. Syllabi should be revised accordingly to include the latest scientific advances made in the field of coaching.

(ii) Regular orientation courses should be organised for the coaches so as to enable them to up-date their knowledge in respect of the recent trends in the profession. NIS may be requested to organise such courses.

(iii) Admission qualifications for the coaching courses particularly in respect of performance level in the respective sports disciplines should be improved. No person should be admitted to any course whose performance level is less than second position in an Inter-University competition.

(iv) A systematic evaluation procedure should be worked out by NIS to evaluate the work of the coaches. The quality of the work rendered by the coaches should be taken into account at the time of promotion to the next scales.

(v) A uniform system of pay scales should be worked out which should be applicable at different levels on all India level.

(iv) A uniform diet allowance should be suggested by AIU for sportspersons participating in the inter-university competitions.

(vii) NIS may be requested to evolve a code of conduct for the coaches which should be circulated to the universities and colleges suggesting its enforcement in these institutions.

(viii) A system may be worked out by each university by way of which coaches working with them can go to the schools to scout talent.

(ix) A scientific research cell on a modest scale should be created, atleast at the university level, which, to begin with should carry research in respect of spoting sports talent for different sports disciplines. The Department of Youth Affairs and Sports may be requested to allocate funds for the purpose.

(x) Universities may be requested to organise intramural competitions frequently during the term period. It is suggested that atleast 4 competitions of this kind should be conducted every year in each discipline.

(xi) The Department of Youth Affairs and Sports may be requested to ask the National Sports Federations to finalise their national calendar well in advance and adhere to the schedule once decided.

(xii) The feasibility of preparing a panel of referees and umpires by the AIU may be examined in consultation with the respective national sports federation. This panel may be circulated to the universities for reference at the time of appointment of these officials to supervise competitions organised by them.

IV. Sports and General Education : Linkages

(i) To provide proper linkage between physical education and sports on the one hand and the general education on the other, all teachers should be involved in organisation and management of sports programmes in the educational system at the secondary and higher education levels.

(ii) Students should be involved in organisation of intramural sports programmes in the schools and colleges.

(iii) In the Training Institutions of Teachers, Physical Education and Sports should be included as one of the curriculum subjects.

(iv) The status of the Physical Education and Sports staff in universities, colleges and schools should be raised to a level comparable to the status of staff teaching in other faculties.

V. Norms of Physical Fitness

(i) Physical fitness tests should be conducted regularly at school, college and university levels. For this purpose physical fitness norms may be evolved by LNCPE, Gwalior separately for men and women sections as also for the various classes of study. Separate physical fitness norms should also be evolved for the handicapped.

(ii) Proper records of physical fitness tests should be maintained and a suitable evaluation process should be evolved to measure the improvements made by each individual student.

(iii) Each university should establish atleast one physical fitness test centre which should be well equipped with necessary infrastructure and manned by qualified personnel.

(iv) Each university may organise a physical fitness week once every year.

(v) Physical fitness test should be conducted to measure the minimum physical fitness requirements for selection of sportspersons to the university teams. Those not satisfying the minimum physical fitness level should not be selected to the university teams. The minimum fitness level may be determined by each individual university.

(vi) The work related to organisation and conduct of physical fitness tests should be handled by the Departments of Physical Education & Sports. □

Institute of Social Sciences, Agra University

AGRA-282004

ADMISSION NOTICE, 1987

Applications are invited for admission to the following regular courses.

1. M.A. (Alternative Course in Sociology)
2. M.Phil. (Sociology)
3. M.S.W. (Master of Social Work)
4. M. Stat. (Master of Statistics)
5. M.Phil. (Statistics)
6. D.C.A. (Post B.A./B.Sc. Diploma in Computer Applications).

Last date for receipt of admission applications is 18th June, 1987 for M.S.W. and 30th June, 1987 for the other courses.

Application forms and prospectus can be obtained from the Institute office on payment of Rs. 10/- (Rs. 16/- if desired by post). Payment should be made in cash, or by M.O./D.D. payable to the Director, Institute of Social Sciences, Agra University, Agra-282004. Applicants should give their complete postal address in block capitals.

FORMER STUDENTS OF THE INSTITUTE ARE HEREBY REQUESTED TO SEND THEIR LATEST POSTAL ADDRESS.

DIRECTOR

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
June 1-15, 1987	Course on Computer Applications in Social Sciences	To expose the participants to fundamentals of computer, computer processing, FORTRAN Language and foundation of data processing and quantification methods.	Centre for Social Studies, Surat.	The Course Director, Centre for Social Studies, South Gujarat University Campus, Surat - 395 007.
June 1-30, 1987	Summer School in Plasma Physics	To give broad exposure of plasma physics to the students of M.Sc. in Physics and fresh research scholars	Department of Physics, Ravishankar University, Raipur (M.P.)	Dr. S. Guha, Convener, Dept. of Physics, Ravishankar University, Raipur (M.P.)
July 3-4, 1987	National Symposium on Development of India's Mineral & Fuel Resources	To discuss the entire spectrum of mineral sector—metallic and non-metallic minerals, coal, ground water, oil and natural gas.	Department of Applied Geology, Indian School of Mines, Dhanbad.	Prof. K.L. Rai, Convenor, Diamond Jubilee National Symposium, Department of Applied Geology, Indian School of Mines, Dhanbad - 826004.
July 6-8 1987	National Symposium on Past, Present & Future of Bhopal Lakes	To provide an intredisciplinary forum for evolving suitable strategy for the maximum utilization and conservation of Bhopal Lakes.	Dept. of Zoology, Govt. Motilal Vigyan Adarsh Mahavidyalaya, Bhopal.	Prof. S.K. Kulshrestha, Director, MAPCOST Seminar, Dept.of Zoology, M.V.M. Bhopal - 462 008
July 22-24, 1987	15th National Conference on Fluid Mechanics and Fluid Power	To bring together researchers and designers, working in diverse fields like Mechanical, Civil, Power, Aeronautical and Chemical Engg. besides Mathematics and Physics to review the state of the art and the recent developments.	Regional Engineering College, Srinagar in collaboration with National Society of Fluid Mechanics and Fluid Power.	Dr. A.M. Bhat, Organising Secretary, 15th National Conference on Fluid Mechanics and Fluid Power, Department of Mechanical Engineering, Regional Engineering College, Srinagar 190 006.
November 16-20, 1987	Seventh National Symposium on Radiation Physics	To provide a forum for a collective discussion and identification of the emerging new directions in the field of Radiation Physics	Department of Physics, Mangalore University in collaboration with the Indian Society for Radiation Physics	Dr. N. Lingappa, Convener, Programme Committee, NSRP-7 and Head, Department of Physics, Mangalore University, Mangalore.
November 26-28, 1987	International Seminar on Instrumental Methods of Electro-Analytical Techniques.	To provide a forum to research workers and practitioners for exchange of information and technical perceptions in instrumental methods of electroanalysis.	Indian Institute of Science, Bangalore.	Prof. M.H. Dhananjaya Principal and Chairman o the Organising Committee, S.J. College of Engg., Mysore.
December 7-11, 1987	Seventh Triennial International Conference on Thin Films. (ICTF-7)	To take stock of recent progress in the field of science, technology and applications of their films.	Indian Institute of Technology, New Delhi, in collaboration with IUVSTA Thin Film Division and Indian Vacuum Society.	Dr. Lalit Malhotra, Secretary, ICTF-7, Thin Film Laboratory, Deptt. of Physics, Indian Institute of Technology, New Delhi-110016.

STEP Makes Headway

A Science and Technology Entrepreneurship Park (STEP) is being established at Roorkee under the sponsorship of the University of Roorkee. The first Governing Body meeting of STEP was held on April 18, 1987. The meeting chaired by Dr. C.P. Gupta, Vice-Chancellor, University of Roorkee, was attended by representatives of the Department of Science and Technology and Department of Electronics of the Govt. of India, and other eminent persons. Highlights of the STEP are as follows :

(a) STEP has been Registered as a Society under Societies Registration Act 21, 1860.
(b) Dr. M.P. Jain, Professor, Industrial Consultation Cell, University of Roorkee, Roorkee has been appointed as the first Director (part time).
(c) STEP will be established at a plot of 20 acres of land on Roorkee-Laksar Road adjacent to the Electronics Complex.
(d) The Union Bank of India has agreed to establish a Chair in STEP for which they will give a grant of Rs. 77,000/- per year for seven years.
(e) The State Bank of India will organise a 15 days Entrepreneurship Development Course from June 1, 1987.
(f) A proposal to sanction Rs. 10.00 lakhs as a grant for creating infrastructure for STEP is under consideration of the State Bank of India.
(g) Department of Science and Technology, Government of India; U.P. Council of Science and Technology, Lucknow and other agencies are being approached to provide necessary funds for early establishment of STEP.
(h) STEP will award a cash prize of Rs. 250/- and a certificate to the best project carried by the B.E. (Civil Engg.) final year students of the University of Roorkee.

Central Assistance for CUSAT

The Ministry of Human Resource Development, Government of India has sanctioned Rs. 25 lakhs to the Computer Science Department of the Cochin University of Science and Technology for "Development of facilities for education and research tools and techniques for knowledge and engineering" which comes under the area of knowledge based system/artificial intelligence.

'Artificial intelligence', as a source of technology, is expected to be very useful for computer applications in medicine, defence, education and commerce. Prof. A. K. Menon, Head, Department of Computer Science, is the Principal Investigator of the project. Similar projects are to be conducted by Jadavpur University and IITs at Bombay, Kharagpur and Madras.

The Ministery has also sanctioned a special assistance of Rs. 10 lakhs each to the Departments of Ship Technology and Electronics, and Rs. 4.45 lakhs for the University's Centre for Information Science and Rs. 3.55 lakhs for the Centre for Microprocessor Education.

Democratization of Education in India

A five-day International Workshop on Democratization of Education in India, sponsored by the United Nations Educational, Scientific and Cultural Organisation is proposed to be held at Manipur University from September 15, 1987.

Topics highlighting different aspects of democratisation of education, with special reference to Indian Constitution, Indian Political System and Judiciary, New National Policy on Education, its national and regional perspectives, specially the problems and prospects in the North East India, the Role of Technology, etc. are proposed to be discussed at the Workshop. It would also seek to devise ways and means to promote the process of democratization of Education and generate democratic consciousness in the educated masses.

Eminent educationists, jurists, scholars and educational administrators from both India and abroad are expected to participate in the workshop.

Four-Year Degree Course in Pharmaceutical Sciences

The Centre is reported to have permitted the Kakatiya University to introduce a four-year degree course in Pharmaceutical Sciences in the University College of Pharmaceutical Sciences, Warangal. This was revealed by Mrs. Krishna Sahi, Union Minister of State for Education and Culture in Lok Sabha recently.

New Courses at Punjabi Varsity

Punjabi University, Patiala, proposes to introduce M. Phil. Course in Economics and Punjabi from the next academic session. The proposed course would be conducted at the Postgraduate Regional Centre of the University at Bathinda.

TTD Annual Grant for Padmavathi Women's University

The Tirumala Tirupati Devasthanams (TTD) has agreed to provide an annual grant of Rs. 15 lakhs to the Sri Padmavathi Women's University, Tirupati. This was announced by the State Endowments Minister, Shri N. Yathiraja, while laying the foundation stone for the computer complex building of the university. The Minister also announced a grant of Rs. 15 lakhs for the completion of the building.

Problems of Translation

The Department of Manipuri Language of the Manipur University proposes to organise a Seminar-cum-Workshop on the "Problems of Translation from different Foreign Languages into Indian Languages/English and vice-versa" from May 18, 1987. The Seminar will discuss different aspects of translation from one language into another with special reference to social, cultural and linguistic aspects.

The participants will be drawn from the colleges, postgraduate departments of the Manipur University and other universities in the Region as also others who are actively engaged in the work of translation from one language into another. Eminent scholars from abroad are expected to participate in the seminar.

Entrepreneurship Development Course

A 15-day Entrepreneurship Development Course will be organised from 1st June, 1987 by the recently established Science and Technology Entrepreneurship Park, Roorkee. The expertise for the course is being provided by the State Bank of India. Other experts will also be invited to deliver lectures. Final year students of B.E., M.Sc. and M. Tech. of Indian Universities and those who have already passed these courses are eligible to attend the course.

Further details can be had from. Dr. M.P. Jain, Director, STEP, Roorkee, Office of Dean (R&IL), University of Roorkee, Roorkee.

News from Agril. Varsities

UAS Dharwad : An Introduction

Second Farm Varsity

University of Agricultural Sciences (UAS), Dharwad is the second farm varsity in Karnataka State. It was established through Karnataka Act, No. 14 of 1986 passed by the Karnataka State Legislature and came into existence on October 1, 1986.

Jurisdiction

The geographical area served by the new university is spread over in Six out of the Ten agro-climatic zones of the State. This University has territorial Jurisdiction over an area of 52 per cent (99.55 Lakh hectares) covered by the 8 districts of northern part of Karnataka, viz., Belgaum, Bellary, Bidar, Bijapur, Dharwad, Gulbarga, Raichur and Uttara Kannada with headquarters at Dharwad.

Institutions

The University has under its fold the following institutions in Teaching, Research and Extension.

Teaching Institutions

1. College of Agriculture-Dharwa
2. College of Agriculture-Raichu
3. College of Rural Home Science—Dharwad (for girls only
4. College of Veterinary Sciences-Bidar
5. College of Forestry-Dharwad (to be located at Magod)
6. Degree Course in Agricultural Marketing and Co-operation-Dharwad
7. Agricultural Engineering Institute (Diploma Course)—Raichur

Research Centres

1. Main Research Station—Dharwad
2. Regional Research Station—Raichur
3. Agricultural Research Stations—
   Bijapur, Bidar, Bagalkot, Bheemrayanagudi, Siruguppa, Hagari, Gangavathi, Gadag, Annigeri, Belavatagi, Hebballi, Mugad, Prabhunagar, Haliyal, Ankola, Sirsi (Pepper), Sirsi (Paddy), Rattihalli, Hanumanmatti, Havangi, Bailhongal, Sankeshwar, Nippani, Arabhavi, Kalloli, Gulgbarga.
4. National Agricultural Research Projects—Bijapur and Bidar.

Extension Centres

1. Extension Education units—Dharwad and Raichur
2. Krishi Vigyana Kendras—Hanumanmatti and Bidar
3. National Agricultural Extension Projects—Dharwad, Raichur and Bijapur.
4. National Demonstration Scheme—Bheemrayanagudi
5. Bakery Training Unit (ladies)—Dharwad

Objectives

The principal objective of the Univeristy remains to be an all round development of agricultural and allied disciplines in the area through its tripartite functions of Teaching, Research and Extension.

College of Agriculture, Dharwad

It was established in 1947 by the State Government of Erstwhile Bombay State with the primary objective of promoting agricultural development. The College was under the University of Bombay and was subsequently affiliated to the Karnataka University at Dharwad in 1950. It became a Constituent College of the University of Agricultural Sciences, Bangalore during 1965. From October 1, 1986 it along with other sister institutions in the northern eight districts of the State became part of the second farm university of the State.

Teaching System and Degrees Offered

The University has adopted the Trimester System of education. The academic year is divided into three terms of about 14 weeks, each of which is called a Trimester.

Undergraduate programmes leading to degrees in B.Sc. (Agri), B.H.Sc. (for girls), B.V. Sc., B.Sc. (Agricultural Marketing and Co-operation), B.Sc. (forestry) and Diploma in Agricultural Engineering are offered by the University.

The postgraduate programmes leading M.Sc. (Agri), M.H.Sc and Doctorate degrees in Agronomy, Aglicultural Botany, Horticulture, Soil Science, Crop Physiology, Plant Pathology, Agricultural Entomology, Agricultural Microbiology, Agricultural Economics, Agricultural Extension, and Food and Nutrition are-offered at Dharwad—the main Campus.

A postgraduate diploma in Intensive Crop production for 12 months duration was started during 1970 to impart intensive practical training in crop production to intending graduates in agriculture.

AIU News

University Choir and Orchestra

> **"I have had my invitation to this World's Festival and thus my life has been blessed..........................**
>
> **It was my part at this feast to play upon my instrument, and I have done all I could".**
>
> —*Tagore*

Music is the most powerful art medium which can lead to integration at national and international level. With this new view Association of Indian Universities (AIU) sponsored University Choirs and Orchestras during session 1986-87, with financial assistance from the Department of Youth Affairs & Sports, Govt. of India.

The scheme has been started with following objectives :

(i) To inculcate amongst youth patriotism and pride for our country and its glorious cultural heritage through community singing;

(ii) To create an awareness of the richness of languages and cultures of India comprising works of great poets and artists and thereby strengthening national integration;

(iii) To inculcate quality of discipline and leadership through community singing;

(iv) To provide opportunity for artistic self-expression at a time by large number of youth; and

(v) To make known India's positive contribution for the cause of peace, development and love towards the world.

AIU has extended financial support of Rs. 15,000 each to 25 universities towards Choir. The funds are to be used for arranging instruments, costumes, rehearsals, training/coaching, etc. Similarly, 25 universities, selected for Orchestra have been extended financial support of Rs. 10,000 each for arranging equipment, conducting rehearsals, training/coaching, etc. The financial support has been provided on the condition that a matching grant is provided by the selected universities.

To start with, the following 15 songs developed by the NCERT have been suggested to be adopted by the Choirs:

Jay Jan Bharati (Hindi); Jay Jay He Bhagwati Sur Bharti (Sanskrit); Sare Jahan Se

---

We Congratulate . . .

Prof. Mushirul Haq who has been appointed as Vice-Chancellor of the University of Kashmir, Srinagar.

Achchha (Urdu); Hind Desh Ke Niwasi (Hindi); Ae Mati Re (Assamese); Om Sangachhadwam (Sanskrit); Pillallara (Telugu); Janma Karini (Malayalam); Cheluvina (Kannada); Odivilayada Para (Tamil); E Muhinjo Vatan (Sindhi); Ata Uthau Sare Ran (Marathi); Akash Ganga Surya Chandra (Gujarat); Wakt Kee Aawz Hai (Hindi); and Dhon Dhanya Pushpe (Bengali).

New Members

Shri Jagannath Sanskrit University, Puri and the University of Health Sciences, Vijayawada, have been admitted to provisional membership of the Association of Indian Universities (AIU). As per AIU rules, regular membership is granted after AIU's team consisting of about three Vice-Chancellors/Directors visits the university and makes its recommendations.

News from UGC

INSAT-1B Programme of UGC

Between 18th and 30th May, 1987 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

18-5-87

"Teaching of Poetry-I"
"The Story of Writing"
"The Chinese Writing System-II"

19-5-87

"Heiner Schepers—A Puppeteer"
"Dr. B.C. Roy"
"Vision of Nehru"

20-5-87

"Effective Counselling"
"NOH Drama"
"Dehydration"

21-5-87

"In Search of the Past:
Egypt-Pharoaha and Pyramids"
"What is GATT"
"Ancient Greece"

22-5-87

"NASA At work-IV Voyager 2: Saturn Encounter"
"COBOL-IV"
"Electromagnets and Their Uses"

23-5-87

"Unity Behind Diversity in Nature-II"
"An End to Pounding"

24-5-87 (Sunday)

"No Telecast"

25-5-87

"Teaching of Poetry-II"
"The Story of Writing—The Indus Script"
"Winds and Their Causes"

26-5-87

"Obsolescence—A Problem for India"
"Educational Revolution"
"Secrets of Stone Water"

27-5-87

"Development Stages in Child Art"
"Children In Towns and Villages"

28-5-87

"Theory of Evolution"
"In Search of the Past:
Greece—The Cradle of Europe"

29-5-87

"No Telecast"

30-5-87

"Genetic Engineering: An Overview"
"Eutrophy and What To Do About It"
"University Round Up"

News from Abroad

Guide to Graduate Study

The Association of Commonwealth Universities (ACU) has published on behalf of the Committee of Vice-Chancellors and Principals of the Universities of the United Kingdom, the 3rd edition of the "British Universities Guide to Graduate Study 1987-88". The Guide lists over 2,500 courses taught at British Universities. There is enormous variety in the courses as some of them like Tropical Crop Storage and Processing, and Regional Planning for Developing Countries are designed to meet the needs of overseas students, some of the courses are geared to specific occupation like, Child and Adolescent Psychiatry, Transport Planning and Management, and Museum and Gallery Administration, while there are others that relate to industry like, the Management of Technological Change, and Engineering Construction Project Management.

British Universities have well developed links with industry and commerce and many courses in engineering and business studies include projects with industry and commercial companies. An article describes the British university scene and the nature of graduate work itself. The Guide also contains information about the structure and length of the courses; the qualifications awarded; the nature of graduate work; fees, grants and awards; and a description of each university, institution. Copies of the guide can be ordered with :

The Association of Commonwealth Universities
John Foster House
36 Gordon Square
London WC1H OPF

Sports News

Sports Scholarships 1987-88

The Government of India, under its scheme of Sports Talent Search Scholarships, provides financial assistance to promising sportsmen/women of universities and colleges. 300 National Level Scholarships of the value of Rs. 300/- per month each are available to those who have excelled while participating in the Junior/Senior National Championship or in an All India Inter-University Championship. The scholarships, offered for one year, can be renewed subject to satisfactory performance in sports as well as studies.

Application forms for the academic session 1987-88 will be available with the Registrars of Indian Universities. Last date for receipt of completed application form is July 31, 1987. For full particulars, students may apply to the Director General, Netaji Subhash National Institute of Sports (NS NIS), Patiala 147 001.

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ANNAMALAI UNIVERSITY

RAJAH MUTHIAH INSTITUTE OF HEALTH SCIENCES

RAJAH MUTHIAH MEDICAL COLLEGE

ADMISSION TO M.B.B.S. COURSE

Notification

Applications are invited for admission to the M.B.B.S. Course for the academic year 1987-88. For application forms and prospectus the REGISTRAR, ANNAMALAI UNIVERSITY, ANNAMALAINAGAR - 608002 may be addressed by enclosing a Demand Draft for Rs. 200/- plus Rs. 8/- for postal charges in favour of the REGISTRAR, ANNAMALAI UNIVERSITY payable on any bank at ANNAMALAINAGAR/CHIDAMBARAM. The forms will be issued from 18th May, 1987.

The last date for receipt of filled in applications is **6.7.87.**

No. K2/2/87
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R. Rajamanickam
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AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles culled from Periodicals received in AIU Library during April, 1987.

EDUCATIONAL SOCIOLOGY

Bhattachary, K.P. Education : Informal, formal and non-formal : A sociological interpretation. *Prog Edn* 61(9), 1987, 201-5.

Instance, David and Chapman, Jillian. Priority for educational equality. *OECD Observer* (141), 1986, 17-9.

Salla, M.M. Higher education and its social relevance. *Edn Q* 38(4), 1986, 33-8.

EDUCATIONAL PLANNING

Adiseshiah, Malcolm S. Education reform perspectives in India. *Bull Edn.* (27), 1986, 1-16/Three.

Anand Sarup. A retrospective view of formulating a new education policy. *Bull Edn.* (27), 1986, 121-134/Three.

Khullar, K.K. Culture and the New Education Policy. *Edn Q* 38(4), 1986, 1-4.

Singh, R.P. Linkages of educational research and policy making : The Indian context. *Edn Q* 38(4), 1986, 10-6.

EDUCATIONAL ADMINISTRATION

Wyatt, J.F. What's in a name? *Hr. Edn. Rev.* 19(2), 1987, 61-8.

TEACHERS & TEACHING

Boice, Robert. Faculty development via field programs for middleaged, disillusioned faculty. *Res Hr Edn* 25(2), 1986, 115-35.

Erwin, T. Dary. Students' contribution to their college costs and intellectual development *Res Hr Edn* 25(2), 1986, 194-203.

Gaya, Tushar Kanta. Systems approach to instructions: Steps to make instruction a more deterministic system. *Edn Q* 38(4), 1986, 17-23.

Malhotra, S.P. and Sansanwal, D.N. Developing inquiring mind in students. *Edn Q* 38(4), 1986, 39-42.

EDUCATIONAL TECHNOLOGY

Adams, D.M. Communicating with electronic images: Transforming attitude, knowledge and perception. *British J Ednl Tech* 18(1), 1987, 15-21.

Kingma, Johannes and Reuvekamp, Johan. Relia : A pascal program to examine the reliability of a set of items. *Ednl. Psy. Measurement* 47(1), 1987, 131-3.

Vegelius, Jan and Dahlgvist, Bengt. A fortran program for correlation and similarity measures. *Ednl Psy Measurement* 47(1), 1987, 127-9.

EVALUATION

Aiken, Lewis R. Formulas or equating ratings on different scales. *Ednl Psy Measurement* 47(1), 1987, 51-4.

Benson, Jeri. Detecting item bias in affective scales. *Ednl Psy Measurement* 47(1), 1987, 55-67.

Divgi, D.R. Does the Rasch model really work for multiple choice items? *J Ednl. Measurement* 23(4), 1986, 283-98.

Gullickson, Arlen R. Teacher education and teacher-perceived needs in educational measurement and evaluation. *J Ednl Measurement* 23(4), 1986, 347-54.

Jaradat, Derar and Sawaged, Sari. The subset selection technique for multiple-choice tests: An empirical inquiry. *J. Ednl. Measurement* 23(4), 1986, 369-76.

Miller, Richard I and Barak, Robert J. Undergraduate academic programme review and evaluation at the state level. *Hr. Edn. Rev.* 19(2), 1987, 18-32.

Yen, Wendy M. The choice of scale for educational measurement: An IRT perspective. *J. Ednl. Measurement* 23(4), 1986, 299-325.

ECONOMICS OF EDUCATION

Elton, Lewis. UGC resource allocation and the assessment of teaching quality. *Hr. Edn. Rev.* 19(2), 1987, 9-17.

Gladieux, Lawrence E. Student financial assistance: Past commitments, future uncertainties. *Academe* 72(6), 1986, 9-15.

Simpson, William B and Mendelson, Morris. Student loans: A moderate proposal. *Academe* 72(6), 1986, 19-21.

PHYSICAL EDUCATION

Connell, David B and others. School health education evaluation. *Intl. J. Ednl. Res.* 10(3), 1986, 245-345.

PROFESSIONAL EDUCATION

Bawa, M.S. Problems of vocationalisation of higher/senior secondary education. *Edn Q.* 38(4), 1986, 24-9.

Halliwell, J. Is distance education by radio outdated ? A consideration of the outcome of an experiment in continuing medical education with rural health care workers in Jamaica. *British J. Ednl. Tech.* 18(1), 1987, 5-15.

EDUCATIONAL JOURNALISM

Thirumalaivelu, T.S. Needed skills for writers/reporters on education. *Prog. Edn.* 61(9), 1987, 206-12, 16.

ADULT EDUCATION

Welton, Michael R. Vivisecting the nightingale: Reflections on adult education as an object of study. *Studies Adult Edn.* 19(1), 1987, 46-68.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Ahmad Dani Hasan. Educational progress in Pakistan: Challenge and response 1947-1985. *Bull. Edn.* (27), 1986, 51-67/Three.

Aina, J.O. Conflict management and academic deans in Nigeria. *Hr. Edn. Rev.* 19(2), 1987, 33-41.

Amagi, Isao. Education in question-educational reform in Japan. *Bull. Edn.* (27), 1986, 17-23/Three.

Arshad, Dato' Rahman. Education and nation building: An analysis of education reforms in Malaysia, 1960-1985. *Bull. Edn.* (27), 1986, 25-40/Three.

Kida, Hiroshi. Educational reform in Japan. *Bull. Edn.* (27), 1986, 69-79/Three.

McKinnon, K. Reshaping Australian education for the twenty-first century. *Bull. Edn.* (27), 1986, 81-102/Three.

Renwick, W.L. Forty years on in New Zealand education: A new net goes fishing. *Bull. Edn.* (27), 1986, 103-119/Three.

Shah, Madhuri, R. Development of education in India. *Bull. Edn.* (27), 1986, 135-45/Three.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

BIOLOGICAL SCIENCES

Anthropology

1. Krishna Rao, Sadasivuni. *Prehistory of Srikakulam region: An ethnoarchaeological study.* Andhra.
2. Shome, Debasish. *Cytogenetic studies in infertile males.* Delhi.

Environmental Sciences

1. Khillare, P.S. *An investigation on the contents of polynuclear aromatic hydrocarbons (PAHs) in airborne particulate matter of Delhi.* JNU.

Microbiology

1. Patel, Pankaj Manilal. *Studies on degradation of cellulosic and lignocellulosic substrates by some fungi.* Baroda.

2. Sharma, Hem Raj. *Rhizobium effectivity and regulation of leghemoglobin nodules of Vigna radiata (L) Wilcrek.* HAU.

Biochemistry

1. Dash, Naba Kishore. *Effect of beta blockers on carbohydrate metabolism of control and diabetic rat tissue.* JNU.

Botany

1. Baruah, Uttam. *Studies of ecological adaptation of shrub species in successional forest communities.* NEHU.

2. Beaula Helen, K.D. *An evaluation of cytosine arabinoside and chlorambucil by in-vivo and in-vitro cytogenetic parameters.* Osmania.

3. Bhardwaj, Subhash Chander. *Studies on vert-de-gris caused by Myceliophthora lutea Cost. on Agaricus bisporus and its control.* YS Parmar.

4. Garg. Renu. *Developmental an ahistochemical investigations on the pistil of some economic plants.* Delhi.

5. Gourinath, A. *Effect of plant extracts, plant products, chemicals and fungal culture filtrates on four pathogenic fungi.* Osmania.

6. Janardhan, K. *Mutagenic studies in Trigonella foenum-graecum* L. Osmania.

7. Muralidhar Rao, G. *Investigation of the upper Gondwana plant fossils of Pranhita-Godavari Basin on Andhra Pradesh.* Osmania.

8. Padma Rao, P. *Studies in anatomy and chemotaxonomy of some Indian Clerodendrum L.* Osmania.

9. Pahwa, Satish Kumar. *Physiological and biochemical effects of isoproturon on wheat, Triticum aestivum L and wild oats, Avena ludoviciana Dur.* HAU.

10. Pandurang, Khairatkar Prakash. *Studies on osmoregulation in Juncus maritimus Lam.* Bhavnagar.

11. Parveen Kumar. *Phenotypic plasticity, karyological and biochemical variability in some natural and gamma-irradiated biotypes of Cynodon dactylon (L) Pers complex.* Punjab Agrl.

12. Patodi. Vijaykumar. *Observations on hyphomycetes of Goa.* Osmania.

13. Sarla. *Morphogenetic studies on some bryophytes.* Delhi

14. Sharma, Anuradha. *Light and electron microscopic studies on normal and abortive ovules of Vigna radiata (L) Wilczek.* Delhi.

15. Sharma, Jai Prakash. *Studies on epidemiology and losses due to major Helminthosperiosis on Maize, Zea mays L in North Bihar.* Rajendra Agrl.

16. Shrivastava, Vandana. *Study of fresh water algae of river Narmada at two different sites i.e. Bheraghat and Gwarighat.* Durgawati.

17. Swamy, Sudhakar P. *Eco-physiological and demographic studies of weeds of successional environments after slash and burn agriculture in North Eastern India.* NEHU.

18. Tejovathi, G. *Studies on morphogenesis and in-vitro flowering in Carthamus tinctorius L.* Osmania.

Zoology

1. Arunachalam, S. *Physiological studies on a freshwater catfish.* Madurai.

2. Chandini, T. *Experimental studies on the life history parameters and population—dynamics of cladocerans, Echinsca triserialis Brady (Macrotiricidae) and Daphnia carinata King (Daphnidae) exposed to chronic cadmium stress at different food levels.* Delhi.

3. Desai, A.Y. *Ecological studies on two intertidal hermit crabs, Clibanarius zebra Dana and Clibanarius nathi Chopra and Das from Veraval, West Coast of India.* Saurashtra.

4. Kiyasetuo. *A survey of frogs of Kohima (Nagaland) and studies on certain aspects of ecology and development of Rhacophorus leucomytax.* NEHU.

5. Krishna Murthy, V. *Microbial flora of selected species of crustaceans.* CUST.

6. Mathew, K.L. *Economic, ornithological studies on the house sparrow, Passer domesticus: Breeding, population dynamics and energy balance.* Saurashtra.

7. Nayak, Raghunath. *Genotoxic potentials of four vaccines in mice vaccinated separately and in some combinations.* Sambalpur.

8. Panchaly, P. *Studies on a few espects of thermal acclimation of some arthropods.* Madurai.

9. Roychoudhuri, Sabyasachi *Role of edaphic factors on the distribution of soil mites (Acarina) of West Bengal, India.* Burdwan.

10. Sehgal, Rekha. *Endocrine regulation of reproduction on certain fresh water teleosts in heavy metal toxicity.* Vikram.

11. Sharada, K. *Studies on biochemical and immunological aspects in the pathogenesis of alcoholic liver disease.* Osmania.

12. Sil, Manisha. *Studies on oxygen consumption of the pituitary of rat and its correlation with cholesterol and electrolyte concentration under the influence of amino acids.* HS Gour.

13. Subhra Chanda. *Qualitative and quantitative studies of the digestive enzymes of two insects of Burdwan.* Burdwan.

14. Vel, V. Palani. *Regulatory mechanisms in murine immune responses.* Madurai.

Medical Sciences

1. Agrawal, Govind Prasad. *Fabrication and formulation of tranquillizers.* HS Gour.

2. Dhas, J. Joseph. *A study of the pharmacology of anupanam (Tamil-thunai marunthu) in the siddha system of Indian medicine.* Madurai.

3. Mani, Indrani. *Studies on serum lipoproteins, glycosylated proteins and urinary imino acids in diabetes mellitus and serum lipoproteins in hepatic, renal and cardiac diseases.* Baroda.

4. Premakumari, S. *Drug effects on the morphology of intermediate pituitary gland in rats.* Madurai.

5. Wadehra, Neena R. *Biochemical studies in patients of bronchial asthma.* Delhi.

6. Waghray, Manjula. *Acute lymphoblastic leukemia in children : A comparative study of cytogenetic analysis in India and in America.* Osmania.

Agriculture

1. Bera, Manab Bandhu. *Rice-bran protein: Process technology and utilization.* IIT Kharagpur.

2. Chandla, Virendra Kumar. *Insect pest complex of potato crop in Shimla Hills and their management.* YS Parmar.

3. De, Dipankar. *Some studies on gravity flow of fertilizers through small hoppers with and without flowaider.* IIT Kharagpur,

4. Dharampal Singh. *Studies on the effect of sowing dates, irrigation and nitrogen levels on the yield, nutrient uptake and water use efficiency of winter maize, Zea mays L.* HAU.

5. Khilari, Jayram Maruti. *Biochemical changes associated with the pigment development during ripening of the thompson seedless grapes, Vitis vinifera L.* MP Krishi.

6. Krishan Lal. *Response of American cotton varieties to plant spacings and nitrogen levels.* HAU.

7. Krishna Rao, V. *Chalka soils (sandy loams) on Telangana, Andhra Pradesh and their physical management.* IIT Kharagpur.

8. Misra, Narasingh. *Modelling runoff and sediment yield from mall watersheds.* IIT Kharagpur.

9. More, Govind Rambhau. *Heat transfer characteristics of milk in scraped-surface evaporator.* IIT Kharagpur.

10. Pandey, Param Han [illegible] *Studies on quality characteristics of solar cured tobacco.* IIT Kharagpur.

11. Roop Raj. *Studies [illegible]ed rates, row spacing and soil moisture conservation practic[illegible] rainfed wheat, Triticum aestivum L.* HP Krishi.

12. Sanyal, Indrajit. *Human energy demand of some farm operations and the development of a power tiller seat from ergonomic considerations.* IIT Kharagpur.

13. Singh, Umesh Prasad. *Crop regulation studies in guava, Psidium guajava Linn.* Rajendra Agrl.

14. Sugandh Pal. *Screening of forage sorghum genotypes for resistance to sheet fly, Atherigona soccata Rondani and stem borer, Chilo partellus Swinhoe and to estimate avoidable losses.* HAU.

15. Tamhankar, Ashok Jagannath. *Studies on the reproductive behaviour of Earias vittella Fab and Earias insulana Boisd and factors governing their reproductive isolation.* MP Krishi.

16. Taneja, Kishan Dass. *Influence of last cut and fertility levels on the seed yield and quality of Egyptian clover, Trifolium alexandrinum L. under late sown conditions.* HAU.

17. Yadav, Raj Kumar. *Response of groundnut varieties (MH 2 and R33-1) to soil moisture regimes and phosphorus levels.* HAU.

Veterinary Science

1. Juyal, Prayag Datt. *Studies on the incidence, clinicopathology and immune response of sarcocystis infection in Goats.* HAU.

2. Rajender Singh. *Studies on different selection criteria for improving the efficiency of egg type chickens.* HAU.

3. Singh, Ajit Kumar. *Nutritive value of urea treated paddy straw and its effect on growth and nutrient utilization in male buffalo claves.* Birsa Agrl.

COUNCIL OF
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Senior Research Fellowship/Research Associateship

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AGE : The upper age limit for Senior Research Fellowship is 30 years as on 1-4-87 (relaxable by three years for Scheduled Castes and Scheduled Tribes). In exceptional cases where a candidate is found to have outstanding ability, the age limit may be relaxed marginally at the discretion of CSIR.

Those who have held or are holding fellowships, getting monthly stipend of Rs. 1200/- or more (present), may also apply but if selected they will be subject to the additional condition that their tenure as SRF together with such tenure of fellowships held earlier does not exceed 3 years in Science subjects and 4 years in Engineering/Medical subjects.

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QUALIFICATIONS : The applicants should have minimum Ph.D. or equivalent degree or M.D./M.S. or three years research, design and development experience after M.E./M. Tech. or equivalent degree in Engineering and Technology in addition to uniformly good academic record. Those who have submitted thesis for Ph.D. may apply for RA, but in the event of their selection, award letter will be issued on their obtaining Ph.D.

AGE : The upper age limit is 35 years as on 1-4-1987 (relaxable by three years for Scheduled Castes and Scheduled Tribes). Marginal relaxation in the period of R & D experience after M.E./M. Tech. Age relaxation may be considered for candidates having outstanding ability at the discretion of CSIR.

TENURE : The selected candidates will get monthly stipend in the range of Rs. 1400/- to Rs. 2000/- per month (fixed) (stipend likely to be revised) for a period not exceeding five years with the provision of annual increase of Rs. 100/- as per rules.

CSIR reserves the right to place the selected candidates at any place considered suitable for the work other than the place from where the application has been forwarded.

HOW TO APPLY : Application forms for the Fellowship/Associateship awards will be available from 18-5-87 and may be obtained from the Under Secretary, EMR, CSIR Complex Pusa, Dr. K.S. Krishnan Marg, New Delhi - 110012. Request for application form specifying the subject—Science, Medical or Engineering must be accompanied by a self-addressed envelope of the size of 15 cm x 25 cm (5½" x 9") with stamp of Re. 1/- affixed on it. Both the envelopes must be superscribed with "APPLICATION FORM FOR SRF OR RA SCIENCE MEDICAL OR ENGG" as the case may be. The form can also be obtained personally from EMR-I, CSIR Complex, New Delhi - 12 with a formal request. Application complete in all respects duly sponsored by the authorities of Institutes/Universities, Research Laboratories (where the candidate proposes to undertake research) alongwith copies of research papers, attested true copies of all relevant certificates, marksheets and testimonials (originals need not be sent) and a crossed Indian Postal Order of Rs. 10/- drawn in favour of CSIR Complex payable at New Delhi Post Office should be sent by Registered Post addressed to Under Secretary, EMR, CSIR Complex, Pusa Dr. K.S. Krishnan Marg, New Delhi - 110012. The Scheduled Caste/Tribe and the physically Handicapped candidates are exempt from payment of application fee. Incomplete applications or applications received after closing date will not be considered. Last date for receipt of applications is **24-7-1987** (for remote areas **31-7-1987**).

CHECK LIST AND SUMMARY SHEET MUST BE SENT WITH APPLICATION. ALL THE PAPERS OF THE APPLICATION MUST BE STITCHED BY THREAD OR TAG BEFORE POSTING TO RETAIN THEM TOGETHER. THE ENVELOPE CONTAINING THE APPLICATION MUST BE SUPERSCRIBED WITH "APPLICATION FOR "SRF" OR "RA" AS THE CASE MAY BE. NO APPLICATION WILL BE ENTERTAINED AFTER THE LAST DATE IS OVER. NO INTERIM ENQUIRIES WILL BE ATTENDED TO. CANVASSING IN ANY FORM WILL BE A DISQUALIFICATION.

INSTITUTE FOR SOCIAL SCIENCES AND RESEARCH

An All India Institution of Higher Learning
VELLORE - 632006, INDIA

FULL-TIME PG PROGRAMMES OF ISSR

ISSR announces the following full-time professional programmes for the Academic Year 1987-88 :

1. Master of Business Administration (MBA)	2 years
2. Master of Social Work (MSW)	2 years
3. Master of Science (M.S.) in Psychological Counselling	1 year
4. PG Diploma in Psychological Counselling	1 year
5. PG Certificate Course in Psychological Counselling	6 weeks
6. PG Diploma in Rehabilitation Management (PGDRM)	1 years
7. PG Diploma in Child Development (PGDCD) (For women only)	1 year
8. PG Diploma in Computer Science	1 year
9. Computer programmes in BASIC, COBOL and FORTRAN	2 months each

ELIGIBILITY : No. 1 Graduates of any discipline with 50% marks in aggregate. No. 2, 4, 5, 6, 7 & 8 Graduates of any discipline. No. 3 Master Degree in psychology, Sociology, Education or Management. No. 9. +2 and above. Candidates who have appeared for the final examination of the Degree Course can also apply.

There will be an Entrance Test for MBA Course on 12-7-1987.

Scholarship and Fee Concession will be given to deserving candidates. Separate Hostel for Men and Women.

For Prospectus and Application Form send Rs. 40/- for MBA and Rs. 25/- for other Courses by M.O./D.D. drawn in favour of the Institute.

Phone : 24645; 25808

REGISTRAR

CLASSIFIED ADVERTISEMENTS

INDIRA KALA SANGIT VISHWAVIDYALAYA

KHAIRAGARH (M.P.)

No. Dev./87/3761

Dated : 1st May, 1987

Applications are invited for the following posts in the University Teaching Departments, viz :—A. **Two Professors** one each for (i) Instrumental Music; & (ii) Painting, B. **Librarian**, C. **Six Readers** one each for (i) Reader-cum-Director for Research Cell, (ii) Vocal Music, (iii) Kathak Dance, (iv) Tabla, (v) Sanskrit and (vi) English; D. **Four Lecturers** one each for (i) Flute—Instrumental Music, (ii) Kathak Dance, (iii) Thumri (Vocal Music), and (iv) Fine Art (Sculpture); E. **Two Accompanists** one each for (i) Harmonium for Instrumental Music and (ii) Mridangam for Karnataka—Instrumental Music, and F. **Matron** for Girls Hostel.

Scales of Pay:—Professor and Librarian Rs. 1500-60-1800 - 100-2000-125/2-2500, Readers : Rs. 1200 - 50 - 1300 - 60 - 1900, Lecturer : Rs. 700-40-1100 50-1300-Assessment-50-1600. Accompanists : Rs. 740-15-800-20-900-25-1000-30-1180 (Chaudhary Pay). **Matron** : Rs. 500 (fixed pay).

Qualifications : For Professors, Readers and Lecturers as prescribed by the University Grants Commission. Details of qualifications for Professors, Readers and Lecturers as also for other posts may be obtained from the Registrar.

Posts are permanent and carry CPF benefits and DA/ADA at University rates from time to time. Appointees will be on probation according to University rules. Retirement age 60 years.

Reservation for posts for SC/ST will be according to Government Rules. If candidates are not available or not found suitable, posts will be filled up from general categories.

Prescribed forms (in four copies) obtainable by sending self addressed stamped envelope of Rs. 3.00 of 25x12 cms. Application fee Rs. 25.00 for Professors & Librarian, Rs. 20/- for Reader, Rs. 15/- for Lecturer, Rs. 5/- for Accompanists and Matron in the form of IPO. Last date for receipt of applications in four copies is 10th Jnne, 1987. The University reserves [the right to keep vacant any of the advertised posts, without assigning any reason.

Candidates called for interview will be required to come at their own costs. The University does not pay TA/DA or any other expenses for journey for interview.

Candidates will be provided dormitory type free lodging (without bedding) in the University Campus if informed well in advance.

Candidates who are in service must apply through proper channel. However, if necessary, three copies may be sent to this office and fourth copy may be sent through employer and NO OBJECTION CERTIFICATE must be produced at the time of interview.

M.K. Gangajaliwale
REGISTRAR

REGIONAL ENGINEERING COLLEGE

HAZRATBAL SRINAGAR KASHMIR

Advertisement Notice No. 1 of 1987

Dated : 7-5-1987

SITUATIONS VACANT

Department

1. Electrical Engg.
   Professor –1 Post
   Power Systems/Power Electronics/High Voltage Engineering.
2. Chemical Engineering
   Assistant Professor—1 Post
   Thermodynamics & Heat Transfer/ Bio-Chemical Engg./Enviromental Engg./ Instrumentation & Process Control.
   Civil Engg.—1 Post
   Lecturer (Temporary)
   (ii) Teaching Assistant (Leave vacancy) 1 post

Qualifications

1. **Professor** : An eminent scholar with published work of high quality, actively engaged in research. Ten years' experience of Teaching and/or research. Experience of guiding research at Doctoral Level. OR An outstanding Engineer/Technologist with established reputation having made significant contribution to knowledge.

2. **Asstt. Prof.** : Good academic record with a Doctor's degree in a relevant field. About five years experience of teaching and/or research and Development.

Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research/published work or design/development work of a high order either in the institution or in an industry.

3. **Lecturer** : Essential : Master's degree Desirable : Good academic record with 1st class B.E./M.E. degree with teaching experience.

4. **Teaching Asstt.** : First class B.E. degree with some teaching experience.

Pay Scales

1. Professor : Rs. 1500-60-1800 100-2000-125/2-2500
2. Asstt. Prof. : Rs. 1200-50-1300-60-1900
3. Lecturer : Rs. 700-40-1100-50-1600
4. Teaching Asstt. : Rs. 700/- plus allowances.

Applications on plain paper with complete Bio-Data alongwith at tested copies of all academic documents including date of birth Certificate should reach the Registrar on or before 10-6-1987. Applications should be accompanied with Indian Postal Order of Rs. 20/- (Rs. 10/- in the case of SC/ST; Handicaped and Socially and educationally backward class candidates). Candidates who have already applied for the post of Professor Electrical Engg. in response to Advt. No 4 of 1986 of 20-12-86 need not apply.

K. G. Ahmed

BANASTHALI VIDYAPITH

(Institution Deemed to be University)

FACULTY POSITIONS

The Vidyapith invites applications for the following positions:

1. **Faculty of Education**
   Department of Education: Readers-2. (Sp. Educational Technology/ Psychology/Educational Philosophy) Lecturer-1. (Sp. Teaching of English/ Home Science).

   Department of Physical Education
   Reader-1.

2. **Faculty of Fine Arts**
   Department of Visual Arts : Reader-1. (Sp. Aesthetics/Painting)

Department of Textile Designing : Reader-1, Lecturer-1. (Weaving/-Printing).

Department of Music: Lecturers-2. Perm.-1 Temp.-1. (Hindustani-Vocal/Sitar).

Department of Dance and Dramatics: Reader-1 and Lecturer-1. (Kathak/Manipuri/Bharatnatyam).

3. **Faculty of Home Science**

Readers-3. Child Development-1, Foods and Nutrition-1, Clothing and Textile-1.

Lecturers-5. Child Development-1, Foods and Nutrition-1, Home Management-1, Extension Education-1, Clothing and Textile-1.

4. **Faculty of Humanities**

Department of Hindi : Lecturers-2. Perm.-1. Temp.-1.

Department of English and Foreign Languages : Readers 2-. Lecturer-1 and Lecturer German-1. (Sp. Desirable, Teaching Methods/Evaluation and Course Development/Criticism/Modern Poetry).

Department of Sanskrit and Vedic Studies: Lecturers-2. Sahityacharya/Vyakaranacharya with Shastri Degree.

5. **Faculty of Science**

Department of Computer Science : Reader-1, Lecturer-1, Programmer-1.

Department of Electronics : Reader-1. Lectuers-2 (Sp. T.V. Technology and Consumer Electronics).

Department of Chemistry: Lecturers-2. (Temp.) Inorganic-1, Analytical/Inorganic-1.

Departmtnt of Physics : Lecturer-1. (Temp.).

Department of Biology : Lecturer-1. (Temp. Zoology-Botany).

Department of Mathematics and Statistics: Lecturer-1. Statistics.

6. **Faculty of Social Sciences**

Department of Economics: Reader-1. (Sp. Micro Economic Theory/Theory of Economic Growth/Research Methodology).

Department of Sociology: Reader-1.

(Sp. Advanced Sociological Theories/Research Methodology /Studies on Indian Society /Sociology of Organisation).

Department of Political Science : Lecturer-1. (Modern Political Theory/Political Analysis/International Politics).

Department of Adult Education : Co-ordinator-1. (Temp.) Likely to continue.

Qualifications : As laid down by University Grants Commission.

Grades : As laid down by U.G.C. Pre-revised grades (Likely to be revised) Reader & Co-ordinator: Rs.1200-50-1300-60-1900, Lecturer : Rs. 700-40-1100-50-1600, Programmer : Rs. 700-40-900-40-1100-50-1300.

Dearness Allowance, P.F., Group Insurance and Gratuity-cum-Insurance as per Vidyapith rules. Residential accommodation on reasonable rent.

Notes: 1. Teachers must become habitual wearer of KHADI on appointment. 2. Vidyapith reserves the right not to fill any post(s) advertised or to increase or decrease the number of Vacancies. Temporary Lecturer may be appointed if Reader is not available. 3. All posts are permanent except mentioned above. 4. Other things being equal, Women candidates will be preferred. 5. Selection Committee may recommend higher start, higher grade in exceptional cases on merit. 6. Second Class return fare payable to candidates appearing at interview.

Applications on prescribed forms in

Association of Indian Universities

16 Kotla Marg, New Delhi-110002

Application from Indian citizens for the following posts are invited in the prescribed form available on payment of Rs. 2/- from the Office of the Association of Indian Universities, 16 Kotla Marg, New Delhi - 110002.

1. **Research Officer** (One) : Revised Scale Rs. 3000-4500.

"A first class postgraduate degree in Science/Mathematics or a High Second Class in Language/Humanities with or at least 7 years of experience of research in the area of examinations in colleges/universities, including mass conducted exams, admission tests and computer applications."

Deputationists from Universities/Colleges will be preferred.

Desirable : Good knowledge and experience of computer applications in university administration.

2. **Senior Cultural Officer** (One) : Revised Scale Rs. 3000-4500.

"Master's degree from a recognised institution/University. Five years experience with a minimum of two years in youth/organising/cultural activities at universities/colleges/other organisations. Incumbent will be responsible for administration of cultural activities at Inter-University/National/International Levels. Deputationists from University/Colleges will be preferred.

All posts carry allowances generally at the Central Govt. rates. Total Emoluments at the initial of the Revised Scale Rs. 3000-4500 at current rates of allowances etc. are Rs. 4390/- p.m. both for Research Officer and Senior Cultural Officer.

Relaxation in any of the requirements may be made in exceptional cases. The Association reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant. Canvassing in any form by or on behalf of a candidate will be a disqualification.

Applications complete in all respects should reach the Office by 30 May, 1987. Applications received after the last date or without complete information may not be entertained. SC/ST/Ex-servicemen will be given preference.

(seven copies) must reach the Secretary, Banasthali Vidyapith, P.O. Banasthali Vidyapith, Rajasthan 304022 by **20th June, 1987.** Forms can be obtained by sending Postal Order/Bank Draft of Rs. 10/- payable to Secretary, Banasthali Vidyapith. No. 5/87.

BANASTHALI VIDYAPITH

(Institution Deemed to be University)

Senior Faculty Positions

PROFESSORS

Banasthali Vidyapith, the National Institution for Women's education, has been doing pioneering work in its field for more than half a century. It's attempt is to bring about an all round development of student's personality expressing a syntheses of the spiritual heritage and Scientific achievement of the East and the West. The Vidyapith lays great stress on value inculcation and character building and emphasis on Indian Culture, thought and conduct and balance between individual freedom and social responsibility characterise Vidyapith's ethos.

The Vidyapith invites correspondence for the following positions of :

PROFESSORS

Education: 1 Educational Psychology/ Educational Technology/Educational Philosophy.

Economics: 2 Sp. Micro Economic Theory/Theory of Economic Growth/ Research Methodology.

English : 1 Sp. Desirable—Teaching Methods/Evaluation and Course Development/Criticism/Modern Poetry.

Hindi : 1

Home Science : 3 Child Development-1, Foods and Nutrition-1, Clothing and Textile-1.

Music : 1 Hindustani Music (Vocal/ Instrumental).

Political Science: 1 Sp. Modern Political Thought/Political Analysis/International Politics.

Sanskrit : 1

Sociology : 1 Sp. Advanced Sociological Theories/Research Methodology/ Studies on Indian Society/Sociology of Organisation.

Visual Art : 1 Sp. Aesthetics.

Qualifications : As laid down by University Grants Commission.

Pay Scale : U.G.C. Pre-revised Scale Rs. 1500-60-1800-100-2000-125/2-2500.

Dearness Allowances, P.F., Group Insurance and Gratuity-cum-Insurance benefits as per Vidyapith rules. Residential accommodation on reasonable rent.

Notes : 1. Teachers must become habitual wearer of KHADI on appointment. 2. Selection Committee may recommend higher start in exceptional cases on merit. 3. First Class return fare payable to persons appearing at interview.

Applications in confidence on plain paper with complete Bio-Data must reach the Secretary, Banasthali Vidyapith, P.O. Banasthali Vidyapith (Rajasthan) 304 022 by **29th June, 1987.** No. 4/87.

ANNAMALAI UNIVERSITY

RAJAH MUTHIAH INSTITUTE OF HEALTH SCIENCES
RAJAH MUTHIAH DENTAL COLLEGE

ADMISSION TO B.D.S. COURSE

Notification

Applications are invited for admission to the B.D.S. Course for the academic year 1987-88. For application form and prospectus the REGISTRAR, ANNAMALAI UNIVERSITY, ANNAMALAINAGAR 608002 may be addressed by enclosing (i) a self-addressed envelope of size 30 cm X 13 cm affixing postage stamps to the value of Rs. 1.80 and (ii) a Demand Draft for Rs. 100/- drawn in favour of the REGISTRAR, ANNAMALAI UNIVERSITY payable on any bank at ANNAMALAINAGAR/CHIDAMBARAM. The forms will be issued from 18th May, 1987.

The last date for the receipt of filled in applications is **6.7.87.**

No. K2/3/87
Annamalainagar
Dated : 25-4-87

R. Rajamanickam
REGISTRAR

HIMACHAL PRADESH KRISHI VISHVA VIDYALAYA

'Recruitment Branch'

PALAMPUR-176062 (HP)

Advt. No. 1/87

Applications are invited for the following posts on the prescribed form obtainable from the office of the undersigned personally or by making written request accompanied by self-addressed envelope 23x10 cms bearing stamp of Rs. 6.00. The detailed instructions regarding qualifications and other conditions will be supplied alongwith the application form. The cost of application form for all posts from Sr. Nos. 1 to 42 is Rs. 10/- (Rs. 5/- for SC/ST candidates subject to production of proof therefor) and that for post at Sr. No. 43 is Rs. 5/- (Rs. 2.50 for SC/ST candidates subject to production of proof therefor), which should be sent through IPO(s), payable to Comptroller, HPKVV, Palampur at HPKVV Campus Post Office. The application form duly completed should reach the Registrar, HPKVV, Palampur-176062 (HP) by **15.6.87.** Request for supply of application form without requisite fee shall not be entertained.

Candidates applying from abroad may send their applications on plain paper giving full particulars of date of birth, examinations passed from High School onwards with division and percentage of marks obtained in various examinations, teaching/research/extension education experience with a list of publications, if any, so as to reach the Registrar, HPKVV, Palampur by **25.6.1987.**

Posts in the Scale of Rs. 1500-2500 (UGC)

1. Professor of Agronomy (1)
2. Professor of Vegetable (1)
3. Professor of Veterinary Microbiology (1)
4. Professor of Veterinary Anatomy & Histology (1)
5. Professor of Veterinary Physiology & Pharmacology (1)

Posts in the Scale of Rs. 1200-1900 (UGC)

6. Plant Breeder (1)
7. Associate Professor of Food Science & Nutrition (1)
8. Associate Professor of Clothing & Textile (1)
9. Associate Professor of Home Management (1)
10. Associate Professor of Home Science Extension Education (1)
11. Associate Professor of Child Development (1)
12. Associate Professor of Bio-Chemistry (1)
13. Associate Professor of Plant Pathology (2)
14. Associate Professor of Veterinary Anatomy & Histology (1)
15. Associate Professor of Veterinary Physiology & Pharmacology (1)
16. Associate Professor of Veterinary Medicine (1)
17. Associate Professor of Veterinary Pathology (1)
18. Extension Specialist (Extension Education) (1)
19. Extension Specialist (Entomology) (1)
20. Extension Specialist (Animal Science) (1)

Posts in the Scale of Rs. 700-1600 (UGC)

21. Assistant Scientists of Plant Breeding (7)
22. Assistant Scientists of Agronomy (6)
23. Assistant Scientist of Agricultural Statistics (1)
24. Assistant Seed Technologist (Plant Breeding / Genetics/Seed Technology) (1)
25. Assistant Scientist (Veterinary/Animal Science) with specialization in Animal Nutrition (1)
26. Assistant Extension Specialists (Animal Science/Animal Production/Fisheries) (2)
27. Assistant Extension Specialist (Agricultural Extension Education) (1)
28. Assistant Extension Specialist (Agronomy) (1)
29. Assistant Extension Specialist (Plant Pathology) (1)
30. Assistant Extension Specialist (Agricultural Economics) (1)
31. Assistant Extension Specialist (Animal Health) (1)
32. Assistant Professor of Bio-Chemistry (1)
33. Assistant Professor of Agricultural Economics (1)
34. Assistant Professor of Entomology (1)
35. Assistant Professor of Genetics (1)
36. Assistant Professor of Vegetable (1)
37. Assistant Professors of Plant Pathology (2)
38. Assistant Professor of Veterinary Physiology (1)
39. Assistant Professor of Veterinary Pharmacology (1)
40. Assistant Professor of Veterinary Parasitology (1)
41. Assistant Professor of Veterinary Medicina (1)

Post in the State Scale of Rs. 940-1850

42. Assistant Engineers (2)

Posts in the State Scale of Rs. 400-600

43. Glass Blower (1)

Applications which are incomplete or are received after due date shall not be entertained.

M.M. Sharma
REGISTRAR

INDIAN COUNCIL OF MEDICAL RESEARCH

The Council proposes to appoint a Director for its Institute of Immunohaematology, Bombay.

This Institute is engaged in research in Immunohaematology with an objective of improving National Blood Banking Services. It is recognised as a WHO Referal Centre for SEA and advises Govts. on quality control for serology reagents. The Institute has been responsible for initiating major research programmes in Immunohaematology and has been an important training centre for medical and paramedical personnel. The Institute has acquired adequate modern equipments and other infrastructural facilities for conducting its activities.

Job Requirements : The Director is expected to provide high level leadership in identification, formulation and implementation of R & D Programmes and projects of national importance in Blood Transfusion Services & Immunohaematology. He/she is expected to develop fruitful linkages with academic, professional institutions, Governments and international agencies. He will have the over-all responsibility for the working of the Centre within the framework of the ICMR System and for ensuring an atmosphere conducive for creative work. The selected candidate is expected to take over as a Director from 1st November, 1987.

Qualifications & Experience : (i) - (a) M.B.B.S. or M.Sc. of a recognised University and (b) M.D./Ph.D./D.Sc. in Medicine/Pathology/Microbiology/Public Health or related disciplines or equivalent postgraduate qualifications. (ii) Research experience of 15 years with original work to the credit of candidate. (iii) Administrative experience in a responsible capacity. (iv) Knowledge and experience in research in Immunohaematology & Blood Banking Services.

Salary/Conditions of Service : The scale of pay attached to the post is Rs. 2000-125/2-2500 (pre-revised) plus allowances as per Central Govt. Rules, including a Non-Practising allowance of Rs. 500/- p.m. Private practice is not allowed. Benefit of pension admissible. Higher initial pay can also be considered. Free medical aid and leave travel concession are also permissible for the employee and his family as per Govt. rules.

Age : Below 50 years. SC/ST candidates allowed relaxation in accordance with Government of India Rules.

Candidates called for interview will be paid first class return rail fare on production of documents.

Applications from employees working in Govt. departments, Public Sector organisations and Govt. funded research agencies should be forwarded through proper channel.

Applications can be obtained from the office of the Director General, Indian Council of Medical Research, Post Box No. 4508, Ansari Nagar, New Delhi-110029 on or before **15th June, 1987.** Forms duly completed should be sent to the Director General, Indian Council of Medical Research, Post Box No. 4508, Ansari Nagar, New Delhi-110 029 with a crossed Indian Postal Order for Rs. 8/- payable to Director General, ICMR, New Delhi. SC/ST candidates are exempted from this payment. Incomplete and late applications will not be entertained. Forms duly completed should reach the ICMR office on or before **15th June, 1987.**

UNIVERSITY OF KALYANI

Kalyani, West Bengal 741235

Advertisement No. 3/87 (2nd) Dated : 8-5-87

Applications in prescribed form are invited for the undermentioned posts on the scale mentioned below with allowances as admissible under the University rules.

Lecturer in English : One post (Spl. Victorian Literature)

Age : Preferably below 40 years.

Assistant Registrar - Two Posts

Age not below 30 years. Relaxable in case of exceptionally qualified candidates

Deputy Registrar—Two Posts (one permanent and the other for UGC SC/ST Cell for a period not exceeding two years).

Age not less than 35 years. Relaxable in the case of exceptionally qualified candidates.

Scale of Pay : Lecturer and Assistant Registrar—Rs 700-40-1100-50-1600/-

Deputy Registrar—Rs. 1200-50-1300-60-1900/-

The principle of reservation of posts for the candidates belonging to scheduled castes and scheduled tribes shall be followed to the extend possible as per orders issued by the State Govt. from time to time.

A circular containing details of qualifications, pay and allowances and other information may be had from the office of the undersigned from 13-5-87 to 4-6-87 between 11-30 and 3 p.m. on working days separately or alongwith the application form on payment of Rs. 7-50 (charge one-fourth for SC/ST candidates) by current crossed Indian postal order in favour of the 'University of Kalyani' personally or by sending a self-addressed stamped (Rs. 1-80) envelope (25 c.m. x 12 c.m.).

Applications forms complete in all respects according to the instructions given in circular must reach the office of the undersigned on or before 4-6-87.

SC/ST candidates must produce documents of caste from the appropriate authority (S.D.O.) at the time of collecting forms.

Those who had applied previously in prescribed form for the posts of Assistant Registrar and Deputy Registrar and Lecturer in English need not apply again.

No TA is admissibe for attending for interviews.

P. Sircar
REGISTRAR

UNIVERSITY GRANTS COMMISSION
BAHADUR SHAH ZAFAR MARG
NEW DELHI-110002

Applications are invited for one permanent post of Senior Library Attendant in the office of U.G.C.

Qualification and Experience : (i) Matriculation on equivalent (ii) Two Years' experience in library work (iii) Good handwriting.

Age limit : 25 years (30 years for Scheduled Caste/Scheduled Tribe candidate)
(Also relaxable for employees of Central and State Governments, Universities and Autonomous Bodies upto 35 years) as on 1-1-87.

Scale of Pay : Rs. 950-20-1150-EB-25-1400 plus usual allowances as admissible to the Central Govt. employees of similar status stationed in Delhi/New Delhi.

The retirement benefits in the shape of Pension-cum-Gratuity-cum-G.P. Fund or C.P. Fund-cum-Gratuity are available to the employees of the Commission. The employees are also entitled to the benefit of the Central Government Health Scheme and allotment of residential accommodation in the general pool of the Govt. of India in their turn. The employees are also eligible for Groups Insurance Scheme of the Life Insurance Corporation of India.

Applications on plain paper addressed to the Secretary, University Grants Commission giving full particulars about age, qualification, experience, present pay and scale of pay etc should reach the office of the University Grants Commission, Bahadur Shah Zafar Marg, New Delhi-110002 within 15 days of issue of this advertisement. Incomplete applications will not be considered.

Persons already in employment should send their applications through their employers otherwise these will not be entertained.

Candidates, if called for interview, will be paid railway fare both ways from their present place of residence to New Delhi and back to the extent of second class or actual bus fare by the shortest route.

davp 823 (3) 87

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities. AIU House, 16 Kotla Marg, New Delhi-110002. Grams : UNIBOARD. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429 Telex 31 5578 AIU IN
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

FD5

University News

MONDAY, MAY 25, 1987 Rs. 1.50

IXth ANN
GANDHIGRAM RURAL INST

From Left to Right : Shri Devendra Kumar, Vice-Chancellor, Dr. Balram Jakhar, Speaker of Lok Sabha, Shri R. Venkataraman, Vice-President of India & Chancellor and Smt. Krishna Sahi, Union Minister of State for Education at the Ninth Convocation of the Gandhigram Rural Institute.

ANNAMALAI UNIVERSITY

NOTIFICATION

Applications are invited for admission to the following courses for the academic year 1987-88.

	Cost of Application Form & Prospectus
1. B.E./B.E. (Chem.) Degree.	Rs. 35/-
2. M.E./M.E. (Chem.) Degree (Regular & Part-time)	Rs. 35/-

Branches

1. Structural Engineering (Regular only); 2. Soil Mechanics and Foundation Engineering (Regular only); 3. Water Resources Engineering (Part-time only); 4. Thermal Power Engineering; 5. Production Engineering; 6. Power System Engineering; 7. Digital Electronics, Control and Instrumentation Engineering; and 7. Chemical Engineering.

3. B.Sc. (Agri.) Degree	Rs. 35/-
4. M.Sc. (Agri.) Degree	Rs. 35/-

Branches

1. Agronomy; 2. Agricultural Entomology; 3. Microbiology; 4. Plant Pathology; 5. Soil Science and Agricultural Chemistry; and 6. Agricultural Economics.

5. B. Pharm. Degree	Rs. 60/-
6. D. Pharm.	Rs. 40/-

For application form and prospectus, **the Registrar, Annamalai University, Annamalainagar - 608 002** may be addressed by enclosing (i) a demand draft to the value indicated against each course drawn in favour of **the Registrar, Annamalai University** payable on any bank at **Annamalainagar/Chidambaram**; and (ii) a self-addressed envelope of size 30 cm x 13 cm stamped to the value of Rs. 1.80 (for B.E./B.Sc. (Ag.) Rs. 3.00) with the name of the course for which the application form is required superscribed boldly on the envelope. The name of the course should be clearly indicated in the requisition letter. The application form together with the prospectus will be issued from 25th May, 1987.

The last date for receipt of filled in applications by the University is as follows:

1. B.E./B.E. (Chem.) and B.Sc. (Ag.)	**— 25th June 1987**
2. Others	**— 30th June 1987**

The University will not be responsible for any postal delay.

No. K2/3/87
Annamalainagar
Date : 11-5-87

R. Rajamanickam
REGISTRAR

UNIVERSITY NEWS

VOL. XXV MAY 25
No. 21 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor:
SUTINDER SINGH

Open Higher Education Innovations & Technology

DOCUMENTATION
UNIT
3 JUL 1987
T R. I, MYSORE

K. G. Deshmukh*

Philosophy and Concept

The advent of Technological Revolution in the developed and developing countries, during the last few years, has generated enthusiasm and greater awareness to exploit the newly inspired skill for the development of economic, cultural and social activities at all levels throughout the world for upliftment and enriching the progress and prosperity of the nations through the medium of education. Education, therefore, occupies a pre-eminent position in moulding and shaping the total personality of the man.

"Education in order to be meaningful and productive has to be close to the realities of the modern developing society. The days of academic isolation are over, and it is imperative and vitally important, that, education specially higher education, shall be such as can influence the decisions and policies of the national life. Educationists have now realised that too much emphasis cannot be put on an exclusive reliance on full time instruction. There are many students who are eager and seriously conducting part time and private studies. They are not able to avail of these benefits due to their economic backwardness or lack of proper opportunities. What we need is a concerted effort to offer every individual an educational opportunity and facilities for further and higher education. Formal or closed education has its own limitations. It is essential, therefore, that new educational strategies are evolved which will provide equal opportunities to all sections of the people."[1]

The system of education is expected to generate new knowledge in all fields within the reach of the human mind. In addition, it has to evolve principles, methodologies and guidelines for the application of knowledge for benefitting society. It is also expected to provide knowledge and skills for solving the problems of development. It must also enable the students to develop an understanding and perspective of the physical and social development. Education is the most effective instrument to meet the challenges of the time. Only education can imbue people with the knowledge, the sense of purpose and the confidence essential for building a dynamic, vibrant and cohesive nation capable of providing its people with the wherewithal for creating better, fuller and more purposeful life. In the history of mankind, education has formed a continuum and a basis for the development of the human society. Through development of attitudes, values and capabilities both of knowledge and skills, education provides strength and resilience to people to respond to changing situations and enables them to cause and contribute to societal development. History has established beyond doubt the crucial role played by human resources in the development of nations. And the development of human resources is the main function of education.

Social Development

The concept of societal development includes economic develop-

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Vice-Chancellor, Amravati University,
Amravati - 444 604 (*Maharashtra*).

ment for furthering the material wellbeing of people; social and political development for living harmoniously and promoting a democratic and just society; and intellectual, cultural and aesthetic development for enrichment of the quality of life. The individual development is conditioned by social concerns which have acquired a new significance. The concept of education itself is now changed. It is no more confined to formal structures and institutions. The dynamics of the expansion of knowledge has led to the concept of life-long learning.[2]

Recently a great deal has been discovered about the process of learning itself and its highly personalised character. The boundaries of the well established disciplines of the past have given way to inter-disciplinary teaching and research. New technologies have begun to be used widely both to enrich the quality and enhance the reach of education. It is therefore, conclusively established that education is fundamental to any aspect of development on both individual and national plane. It helps nations achieve a better standard of civilization, improves the quality of life and enables individuals to anticipate better future for themselves as well as to participate in the making of it. One would generally agree that many of the problems of the poor nations of the world emanate from lack of proper education and training. This is amply reflected in the shortage of trained personnel in all the critical sectors of development and in the large number of unemployed and underemployed persons. Illiteracy, obviously, is one of the major causes of the problem. People cannot be trained well for their professions unless they are at least functionally literate. Due weightage has been given to this crucially significant aspect of development. We are initially concentrating on the rural areas, since there the situation is, if anything, worse. Our rural population does not know what modern agriculture is about, still less, what technical progress even remotely means. The Government of India has launched a massive programme of Adult Education to impart knowledge to the illiterate masses in rural areas so as to make them functionally literate. This programme is yielding phenomenal results. The Indira Gandhi National Open University established by the Government of India in the year 1985 is a testimony and pointer to the thinking of the government for decentralisation of education from the formal to the non-formal. The university offers initially the diploma level courses in distance education and management. These programmes will be followed by diplomas in rural development and in Computer science. A diploma in creative writing is also envisaged. The preparations for the undergraduate programmes are in progress and the courses will be offered shortly. The university is also designing courses specially in the areas of relevance to the needs of women and for teacher orientation. The courses will be restructured on a modular pattern with the facility for accumulation of credits. Provision is being made for transfer of credits from the formal to the non-formal system, and vice-versa. Standard is being prescribed to determine the minimum level of learning at every stage of education and criteria will be evolved to objectively assess this level of attainment so that opportunities can be provided to all including housewives, agricultural and industrial workers and professionals to continue their education.

In the year 1976, the National Council of Educational Research and Training document 'Higher Secondary Education and its Vocationalisation' was presented to the country setting out a model conceptual framework for implementation. The programme for vocationalisation of higher secondary education was initiated in 1976.[3] Since then it has been implemented in 10 States and 5 Union Territories. A number of other States have introduced vocationalisation in the academic year 1986-87. The current intake in the vocational stream is of the order of 72,000. Only about 2.5% of students population entering higher secondary stage is covered by vocationalisation so far. Being aware of the importance and need for diversification of Secondary Education—its vocationalisation, the Central Government has initiated many actions and made many proposals. Evaluation studies of vocational programme in most of the States were conducted to provide the findings to the States for improving implementation. The vocational courses at higher secondary stage are regarded not as preparation for the college, but as a period for preparing an increasingly large number of school leavers for different vocations in life. The need for vocationalisation of higher secondary education has been conceded by all, but the problems in its implementation may be appreciated by the fact that only a small percentage of students population has been covered by vocationalisation in the past nine years (1976-85). The estimated number of students seeking admission to +2 in 1985 was of the order of 25 lakhs. Even if 10% of this population was to be diverted for vocational courses, the number should have been over 2.50 lakhs, against the present intake of 0.72 lakhs. The problem can be further appreciated, if this data is seen against the Kothari Commission's recommendations, expecting a diversion of 50% of 10+ students for vocational education.

Cultural Education : Broad Parameters of the Strategy

The basic emphasis in interlinking education and culture would be on the development of a student's personality particularly in terms of helping the student to discover his latent talent and to express it creatively. This plan of action envisages development of a progressive sequence from the pre-primary stage to the university level. The chief features of the plan of action can be enunciated as under:

The students will be expected to learn in a participative process. The means and material used for cultural exposure would be simple, inexpensive and related to their immediate environment. Over a period of time, the concept of cultural neighbourhood would be evolved, in which the community would be expected to play a significant role in terms of its help and involvement in various forms. Special emphasis would be given to curriculum re-orientations and motivating teachers to interact with students by suitable adjustments in pre-service and in-service training courses. With a view to encouraging students and youth in cultural and allied activities, their interest in them will be appropriately reflected in their result sheet.

Professional Education

The term professional education relates to the knowledge of a profession which the students desire to take up after attaining the requisite level of proficiency. In India it mainly relates to Rural Education. Rural education received fillip with intensification of the freedom movement. In addition to several other thinkers, Rabindranath Tagore and Mahatma Gandhi gave particular attention to establishment of comprehensive institutions for the rural people starting at the early childhood level, going up to the highest. Inspire of the difficulties faced by it, Gandhian basic education has survived in the country and comprises a vital feature of our system. A large number of rural institutes were set up under the auspices of voluntary agencies during the second five year plan. Over the years, however, Gandhian basic education, rural institutes and other institutions primarily meant for rural areas did not receive sufficient support and encouragement. However, in the year 1986, after reviewing the situation the Government of India has adopted a strategy and a plan of action for implementation. The pattern of professional education envisages development related to the needs of the rural communities and strengthening the support programmes of Gandhian basic education. The Educational institutions and voluntary agencies shall take up educational programmes based on the concept of correlation between socially useful productive work, social service and academic study. The Government of India has envisaged a complex of institutions which seek to integrate all aspects of education, training with productive and creative activities, horizontally across disciplines of science, technology, humanities and social sciences and vertically across all stages of education primary to higher education. In pursuance of the above objective, measures proposed to be taken include: consolidation of the existing rural universities and reorganisation of the rural institutes established as part of the scheme of rural higher education launched in the second five year plan, encouragement to other existing educational institutions and voluntary agencies to develop in accordance with Gandhian philosophy of education for rural reconstruction, development of selected institutions in rural areas as autonomous colleges for strengthening programmes of education related to the needs of rural development, recognition and support to elementary, secondary and post-basic institutions based on the concepts of *Nai Talim*, strengthening of the content of all these institutions with emphasis on science and technology, designing a variety of courses at ter-

UNIVERSITY NEWS

A Weekly Chronicle of Higher Education

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tiary level around emerging rural occupations, strengthening teacher training facilities for Gandhian basic education, and review of recruitment qualifications to give due recognition and encouragement to field work oriented courses of rural institutes.

The advent of computer technology has revolutionised the whole world. Computer can store large data by electronic recording and process the data. 1K Byte character memory has the capacity to store 1024 characters of information and a floppy disc of 8 inch (double side, double density) of about one MB memory would easily store one and half books of each 300 pages. Winchester disc of 15 MB memory can store 20 books. The IBM 3850 mass store can store material of 2 Lakhs books. The recent device of video disc of the size of a long playing record can store on both the sides material of 3200 books. All these details may give an idea of the fantastically high capacity of electronic data storing.

The computer can perform very large number (about millions) of operations per second. Further, the access to any selected part of the data stored is also very fast and the required output can be printed or seen on the screen. It can also be transmitted through telephone cables or through microwave and satellite communication and delivered at the terminal with appropriate reception facilities. The Bombay Telephone Nigam is shortly introducing this device in India for the first time.

In the field of education, library serves the purpose of storage of knowledge and dissemination of books to readers. The whole process of writing books, publishing, storage and dissemination gets radically changed with the new technologies of electronic storage devices, computers and communication.

Technology is changing in its versatile nature and range of application so fast that those involved in the development cannot clearly predict what is in store after a decade or two. Fifth generation computers as 'Intelligent' and small machines are in the stage of development and may be available within a decade or so. Microprocessors are entering in every area of activity. In fact some of the advanced countries like Japan, USA are poised for transition into post-industrial society. The new technologies have the following general features:

(a) ECONOMICAL : Micro-miniaturization has reduced size and automated factories have increased production resulting in lesser costs.

(b) VERSATILE : Range of application is fast widening and technology is becoming reliable and 'user-friendly'.

(c) WIDER ACCESSIBILITY : Reduced cost and versatile nature is finding easy acceptability and wider use by common man.

(d) DECENTRALISED NATURE : New technologies are creating wider information base to which contribution comes from wide variety of segments of society. Through closely linked and easily communicative technologies, individuals or groups can fulfil their distinctive information requirements. Thus many creative and innovative users get freedom to develop and communicate their software. Instead of uniformity, this technology is capable of promoting diversity and would suit a country like india with linguistic and cultural variety. Knowledge forms basis for development. To give better opportunities for development is to give necessary information to an individual or group required for development. Hence creation of knowledge or information and to make it accessible to all is the basic objective of the 'information communication network'.

Information Communication Network

"New communication technologies are helping in building up national and international information communication networks and a new information order is getting developed. The network has great capacity of storing, processing and transmitting information electronically, and any one having access to the network can receive any information from anywhere stored in the network. Versatility and capability of the network are expanding at unimaginable rapidity. With fifth generation computers round the corner, technological change is in the offing in which TV electronic tube may be replaced by liquid crystal screens, thereby reducing the size and cost of the television and increasing its portability and convenience, and the availability of more versatile satellites that would offer larger number of channels and would link and two locations on the surface of the earth, the stage is well set for revolutionary changes which even best experts in the field fear to forecast. The new information technologies have, on the whole, very specialised and centralised nature for its hardware development. However, its mass production has made the production very economical. Further, the software developments, appropriate to local situations and requirements, necessary to use new technologies have given the technologies, the common features of being economical, versatile, having wider accessibility and decentralised nature. The new communication technologies, with the above characteristics, would generate creative processes and activities at various localities and would effectively contribute to the creation of knowledge, which itself would become decentralised in future.

Broadcasting (radio, television) and non-broadcasting (audio and video casettes, computers, etc.) channels of communication network offer an excellent opportunity of creating an educational network. The educational network would essentially consist of storage of learning material in audio-visual and textual forms with linkages with receiver, the students through terminals, study centres or other group or institutional centres. It should have teaching and counselling facilities which should be made available to every student linked with the educational network. The network is likely to change not only the nature and functions of the library but the whole teaching-learning process, both in formal and non-formal education. During the transitional stage, the educational network would use both broadcasting and non-broadcasting channels and would have face-to-face teaching-learning component characteristic of the formal educational system. As the distance education technologies become interactive and distance communicative, the face-to-face component may get reduced".[5]

Thus the philosophy and idealism of the Open Education System is no longer held as being impractical or unrealistic in our academic circles in view of advent of technological revolution which can be profitably utilised throughout the length and breadth of the world. Rather it would be more pragmatic to say that this concept of open education system is now performing its historic part as a valuable supplement to the conventional formal education system.

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J.S.S. MAHAVIDYA PEETHA
RAMANUJA ROAD, MYSORE-570 004

NOTIFICATION No. SEC/36/87-88 **Dated: 12-5-1987**

APPLICATIONS are invited for the Post of Lecturers in :

(a) J.S.S. College of Pharmacy, Mysore (Karnataka).
(b) J.S.S. College of Pharmacy, Ootacamund (Tamil Nadu).

I. Qualifications

(a) Essential : M. Pharm of a recognised University.
(b) Desirable : (i) Doctorate in Pharmacy; (ii) Teaching Experience.

Note: Candidates with B. Pharm qualification with not less than 2nd Class may also apply.

II. Scale of Pay

(a) **Government of Karnataka :** 1,050-50-1,200-60-1,500-75-1,950. Plus other allowances admissible from time to time (Total emoluments Rs. 1,675/- P.M.) in the old scale. The salary is likely to be revised as per Karnataka Government.

(b) **Government of Tamil Nadu :** 1,340-75-1,715-90-2,435. Plus other allowances admissible from time to time (Total emoluments Rs. 1,755/- P.M.) Advance increments also will be considered.

III. The application may be enclosed with Bio-data, Copy of Marks Cards, and other Certificates, if any.

The last date to receive applications in the Office of the PRINCIPAL, J.S.S. COLLEGE OF PHARMACY, RAMANUJA ROAD, MYSORE - 570 004, is within a fortnight from the date of advertisement.

Sri. H.C. Basavanna
SECRETARY

M. S. University of Baroda

An Inside View

R. V. Kothari*

Universities had been first established in India more than 2000 years ago. Two of them, Nalanda and Taxshila were known in many countries of Asia. Universities, as we know them today, began in medieval Europe and were gradually exported to other parts of the world as a part of European expansion.

The idea of establishing a University at Baroda had engaged the attention of the government of former Baroda State as early as 1908, and the Maharaja Sayajirao University of Baroda came into existence in April, 1949, under the M.S. University of Baroda Act. It is a unitary, teaching and residential University. The University, therefore, follows comparatively recent pattern of having its own teaching institutions unlike the affiliating universities.

As in other Indian universities, this University has the British pattern of management with Chancellor, Vice-Chancellor, Pro-Vice-Chancellor and Registrar. In terms of bodies, it has a Senate, a Syndicate, Faculties, Council of Postgraduate Studies and Research, Boards of Studies, and Academic Committees constituted from time to time. The student population ranges between 23,000 and 25,000 per year and the University follows English as medium of instruction. The University caters to the needs of urban and rural students in different disciplines and areas of specialization.

Baroda City, with a population of well over 8 lakh people, is the centre of art and culture, education and literature, medical facilities, business and industries with big industrial complexes of national importance like Gujarat Refinery, Indian Petrochemicals, Oil and Natural Gas Projects, Gujarat State Fertilizers and many other allied and independent industrial projects. This provides the Baroda University with a challenging scenario.

The social structure of the City represent different types of people from different sections and levels with varying needs as regards their education. Since the University is responsible for imparting higher education, it has to be selective in offering several courses not only according to the needs of the Society as to their aspirations but also to the needs of the employment agencies as to the type of product they could usefully absorb. In recent years, due to the large scale unemployment, there is a keen competition amongst the students to acquire University education especially in the areas where job potentials are comparatively higher. This requires making additional effective arrangements for increased number of admissions in such courses but due to financial constraints and limitations of physical facilities it may not always be possible for the University to respond to the requirement of the Society to a desired extent.

Moreover with the development of new technologies, the demands for new specialized courses have also to be considered by the University from time to time. Introduction of new courses entails proper advance planning, creation of financial resources, provisions for staff, building and equipment, and poses some difficulties at the initial stage.

Equally important are the areas of teaching methods and methods of assessment. In the existing courses as well as in those which are newly introduced from time to time, the University has to keep up-to-date so that the students community is in a position to take full advantage of latest developments.

As regards the financial resources, the University is primarily dependent on the funds made available by the State Government. In certain specialized new programmes, the University Grants Commission, the Government of India and some other agencies also offer time bound financial help, either cent per cent or in part. The State Government of course shoulders the financial liabilities after the time bound help terminates. The income generated from the fees, etc. are very meagre and therefore cannot support any new education programme without the help of the Government or other funding agencies.

For effective running of the new and existing courses, it is very essential to keep qualified teaching staff in sufficient numbers on the rolls of the University. This poses certain problems due to either lack of availability of qualified personnel or their absorption by other

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**Registrar, M.S. University of Baroda, Vadodara*-390002.

employment agencies and occupational avenues which prove to be more attractive.

It is also important to see that the university education does not merely become an education for getting some kind of degrees which are pre-requisites for jobs. The cultivation of interest for art and literature and culture plays dominant role in the task of building a healthy society which is sensitive to the values and responsive to the national problems.

For effectively meeting these challenges it is clear that the Government or the University alone may not be able to provide a fruitful solution without the active participation of the society as a whole.

After completion of the Undergraduate education at the University, students go to the society either for self-employment or employment in the Industries or Government or Semi-Government organisations. The capacities of these organisations to absorb young graduates are limited in view of their employment potential. Moreover it is also possible that the graduates as they go out may not have the pre-requisite specialized practical training for desired jobs. The employments may also be seasonal or permanent. The manpower planning, therefore, plays very important role as regards employment of people. The University is always striving hard by mutual deliberations to assess the academic, practical and other requirements for employment and makes full endeavour to satisfy the same to the maximum possible extent. But due to complexities of requirements as such and various other limitations it may not be possible to meet these requirements in a desired manner or measure. The employment agencies may have therefore to provide the specialized training programmes to bridge the gap.

Another area which continuously engages the attention of the university authorities is the process of reforms both educational and examination reforms. Curriculum development, its revisions and modifications in tune with the present day progress in different areas are required to be undertaken quite often. A system of continuous internal evaluation is in operation in all the faculties for nearly two decades. The question of prescribing textbooks and reference books and updating the Library facilities accordingly also demands careful attention of the academics.

The examination systems of the University also consist of several methods such as theory, practical and termwork, viva voce, essays, projects, dissertations and theses, which undergo revisions and modifications from time to time.

The factors of inter-departments, inter-faculty, inter-University and University-Industry collaboration also form an important consideration while framing the teaching and examination policies.

The academic authorities like the Boards of Studies. Faculties, Council of Postgraduate Studies and Research and the Syndicate are responsible for undertaking the continuous task of these reforms.

Admission of students to different undergraduate and postgraduate courses every year is also a rather complicated matter involving suitable procedure for admission, like conduct of Entrance Tests for certain courses, oral interviews and so on. Further, a good deal of admission cases are required to be decided on individual merits as it is not possible for any University to have just recognised all or any examinations of all universities and examining bodies merely by its nomenclature. This particularly involves ascertaining equivalence as regards curriculum, number of years spent for study, type of examination, etc., etc.

It is pertinent to mention here that the admission and examination seasons have more or less a common calender throughout the country. Any activities which upset this calendar causes adverse effect on the employment prospects of the Graduates. This is equally true of the students' prospects in seeking admissions to the courses of higher learning.

The University also performs the important task of recruitment of teachers for different courses in different teaching departments. While the University ensures suitable qualifications and proper selection and promotion procedures, the professional growth of the teachers is very vital. For this purpose the University encourages teachers undertaking short term and long term research projects and publishing research papers books, etc., participating in Seminars and Conferences, and their deputation to foreign universities and agencies on special assignments.

Although the first degree education is of prime importance for one's academic growth in life as a means of securing a job and personality development, the quest for knowledge does not end there. The postgraduate teaching and research project the students in the world of advanced knowledge and research teachniques. The arrangements in this regard are generally two-fold, namely the institution of postgraduate and M. Phil./

Ph.D. programmes and recognition of reputed institutions and expert personnel for the purpose of carrying on research and development work.

It hardly needs stressing that the students are the first and foremost beneficiaries of the fruits of all these facilities. In fact, it is rightly said in the New Education Policy that the investment in education is the sound investment for building a prosperous future India and it has therefore attracted special attention of the government and eminent educationists of the country.

It is most desirable therefore that the students take the fullest benefit of the various facilities provided to them. It is expected of them that they conduct themselves in a disciplined manner, be not swept away by the short-sighted temptations which prove to be injurious to them in the days to come and build themselves into responsible citizens with the sense of awareness, sincerity, loyalty and all those good qualities needed befitting the human dignity.

In the recent years we notice with grave concern the incidence of indiscipline in the classrooms, in the examination halls, in the campus and outside the campus. It is high time we all awake up to this menace and restore discipline before it is too late.

The University can certainly contribute a good deal by ensuring proper means of communication with students, as communication lapses are found to be the most important factors leading to students unrest. The programmes and procedures of admissions, rules and regulations of tests and examinations, syllabi of the subjects taught, declaration of results and such other matters if handled carefully can bring harmony and peace on the campus. The main responsibility lies here, on the administration, either through the administrative staff or teaching staff that may be responsible for the job. ☐

Jagadguru Sri Shivarathreeswara Maha Vidyapeetha
J.S.S. College of Pharmacy
Ramanuja Road, MYSORE-570 004.
PHONE : 27583
(Affiliated to University of Mysore for B. PHARM COURSE)
AND
(Affiliated by the Pharmacy Council of India for D. PHARM COURSE)

ADMISSION NOTIFICATION 1987-88

APPLICATIONS are invited for Admission to Bachelor in Pharmacy (B. Pharm) and Diploma in Pharmacy (D. Pharm) in the above institution for the Academic Year 1987-88.

Diploma in Pharmacy is a Two years course. Candidates who have passed S.S.L.C. or equivalent examinations are eligible for admissions to I Year D. Pharm and the candidates who have passed H.S.C./P.U.C./P.D.C., or equivalent examinations or 1st Year B.Sc., Examination with Science combination are eligible for admission to II D. Pharm directly.

The Degree Course is of four years duration.

(a) Candidates who have passed II P.U.C. or equivalent examinations with Physics (P) Chemistry (C) Mathematics (M) and Biology (B) or P.C.M. or P.C.B., securing not less than 50% of Marks (both years of P.U.C./ or its equivalent) with Science subjects are eligible for admission.

(b) Candidates having 50% of the aggregate marks of the Final D. Pharm of the two year D. Pharm Course conducted by an authority approved by Pharmacy Council of India are also eligible for admission.

Application form with Prospectus can be had from the College Office on payment of Rs. 25/- by Cash, D.D. or Indian Postal Order drawn in favour of Principal, J.S.S. College of Pharmacy, Ramanuja Road, Mysore-4. Money Orders will not be accepted.

Hostel facilities are available to both boys and girls.

The session will start from August, 1987. Last date for receiving the completed application forms is **10th July 1987.**

Sri H.C. Basavanna
SECRETARY

Convocation

Education and Rural Development

Gandhiji viewed the system of education, as it had existed, sterile and stagnant which could not act as a catalyst of social change. He believed that education should be rooted not only in the ethos of our rural society but it should be available at the doorsteps of the villages. And Gandhiji was the greatest educator India has ever had, reminded Dr. Balram Jakhar, Hon'ble Speaker of Lok Sabha while delivering the Convocation Address at the ninth annual convocation of the Gandhigram Rural Institute. Excerpts:

Gandhiji's ideas of education were of a far-reaching nature. He might not have been in the mould of a formal educationist or an academician. But as the greatest leader of the masses, he had a remarkable perception of the role of education in the grand scenario of our country's development. Though he himself was a product of that system, he could liberate himself from its clutches. Indeed, he was highly critical of the system of education planted in our country by the British. He was of the view that the system of education, as it had existed, was sterile and stagnant and that it could not act as an effective catalyst of social change in our society. It was just catering to the interests of the alien rulers whose sole goal was to keep India and Indians in perpetual subjugation. If one could discern a political colouring in his earlier views on education, in the later years, as he came to grapple with the problems of rural India, especially the stark realities of rural poverty, Gandhiji became convinced of the paramount role of education in any constructive programme for the regeneration of rural India. He believed that education has a very crucial role to play in providing new attitudes and skills to the villages so essential for their development.

In a country like ours with a predominantly agricultural or rural economy, he believed that education should be rooted not only in the ethos of our rural society but it should be available at the doorsteps of the villages. This is the very *riason d'etre* of rural education. "Rural education", he wrote once, "consists of drawing the best out of yourself—what better book can there be than the book of humanity".

Gandhiji was of the view that education imparted to the young even at an early age should have activities involved in a continuous craft. He laid great stress on vocational education for the development of the child. As far back as 1937, Gandhiji wrote in '*Harijan*':

> "I am a firm believer in the principle of free and compulsory primary education for India. I also hold that we shall realise this only by teaching children a useful vocation and utilising it as a means for cultivating their mental, physical and spiritual qualities. We have upto now concentrated on stuffing children's mind with all kinds of information without even thinking of stimulating and developing them. Let us now cry a halt and concentrate on educating the child properly through manual work, not as a side activity but as the prime means of intellectual training".

Gandhiji was fully aware of the fact that learning as well as teaching through the crafts was no easy task. He wanted a total re-orientation of the curriculum, the preparation of good text books and adequate training of teachers for the success of such an educational endeavour. What Gandhiji envisioned was not the teaching of a craft just as an additional subject, but the teaching of all subjects in a creative manner through the methodology of every craft. He said:

> "Every handicraft has to be taught not merely mechanically as is done today but scientifically i.e. the child should know the why and wherefore of the process. I am not writing this without confidence because it has the backing of experience. I have myself taught sandal-making and even these lines with good spinning on results. . . . . One imparts ten times as much in this manner as by reading and writing. . . . This is a revolutionary proposal but it saves immense labour and enables a student to acquire in one year what he may take much longer to learn".

It was precisely this revolutionary idea which came to be adumbrated in his educational philosophy of 'Nai Talim' or basic education popularly known as the Wardha Scheme of Edudation. In fact, in this scheme, Gandhiji was trying to combine the task of educating the child with preparing him for his later life. He wanted to open up the young minds as well as impart in them the requisite skills which could help them to earn their bread. In a country like ours, where manual labour was and is looked down upon with contempt, Gandhiji was trying to create the emergence of new attitudes in our people through a new value system in education. By making the young do manual labour at an early age, he believed that the general antipathy towards such work would go. The young would learn the dignity of manual labour, so much vital for the development of our rural society.

In his scheme of education, Gandhiji envisioned a great role for the students. He wanted them to spend their vacations in villages not only to know more about rural life but also to develop a rapport and understanding with the village folk. He said:

> "The students should devote the whole of their vacation to village service. To this end, instead of taking their walks along beaten paths, they should walk to the villages within easy reach of their institution and study the conditions of the village folk and befriend them. This habit will bring them in contact with the villagers, who, when the students actually go to stay in their midst will by reason of their previous occasional contact, receive them as friends rather than as strangers to be looked upon with suspicion".

Gandhiji firmly believed that the students could contribute much to the process of village modernisation. And that was precisely what he wanted from the students during their stay of vacation in the villages. He said:

> "During the long vacation, students might stay in the villages and offer to conduct classes for adults and teach the rules of sanitation to the villages and attend to the ordinary cases of illness. They will introduce the spinning wheel amongst them and teach them the use of every spare minute. In order to do this, students and teachers will have to revise their ideas of uses of vacation. Often do thoughtless teachers prescribe lessons to be done during the vacation".

I have quoted Gandhiji somewhat extensively because there is a prevalent misconception that the Gandhian philosophy of education is not in tune with the modern times. As a matter of fact, when he put forward his ideas of basic education, he even sounded theoretical for some but today, his views are widely accepted as valid although the mode of expressing them is somewhat different. As Professor Gunnar Myrdal says:

> "In his propaganda for basic education, Gandhi showed a surprisingly modern way of thinking. He saw the need for algebra as well as reading and writing; he gave high priority to education in sanitation and health care; in general, he viewed education as a means of improving attitude. Furthermore, in his condemnation of the inherited literacy or academic types of schooling especially at the primary level, in his plea for organising subject matter according to interest and purpose and his demand for active participation, by the pupils themselves, he was in line with modern theories of 'learning through doing' that were developed by John Dewey and other educators in the United States".

For on my part, I believe that Gandhiji was the greatest educator India had ever seen. He had the vision of an educational system specially suited to the genius of our country. To him, education and village development were mutually inclusive. There could be no development possible for the Indian society without a definite tilt in favour of rural education. This is all the more so even today for, after-all, India continues to live in villages. And rural development is the golden means for progress and prosperity of our nation.

I feel that Gandhiji was a perennial source of inspiration for our great political leaders and planners in the shaping of our policies aimed at rural development. Ever since the inception of economic planning in our country, we have experimented with various programmes and approaches for rural development. However, these programmes and approaches were mostly selective and sectoral in nature. Their impact on the rural life was, therefore, marginal and they did not contribute much to the balanced and overall development of the rural areas. It was with a view to remove these shortcomings that the Integrated Rural Development Programme (IRDP) was introduced in our country during the Sixth Five Year Plan. And the emphasis on this vital programme continues even in our Seventh Five Year Plan.

I am one who strongly believes that any programme of rural development, howsoever well thought out and planned for implementation, can be successful only with the active participation of the rural people themselves. In rural India, the major factors impeding the economic advancement of the poor even today are their illiteracy, inferiority complex and lack of awareness of the facilities meant for them, lack of enthusiasm to prosper and the domination of the rich in the whole gamut of activities of rural development. It is in this context that I find the continued relevance of rural education for rural development. It is a happy augury that our New Education Policy lays great emphasis on the role of the Rural University in taking up the challenges of microplanning at the grass-roots and the transformation of rural areas and that too, in a demonstrable and verifiable manner. □

Himalayan Eco-Development

The North Eastern Hill University (NEHU) has taken up a number of co-ordinated research projects on Himalayan eco-development to have a clear picture of the ecological system in the north-eastern region. The various departments of the University have already initiated studies on the geological historical perspective of native and exotic flora and fauna besides establishment of human societies. All available data in the region when pooled together might present a comprehensive picture of the changes which occurred in the last one century.

The University has initiated a study on "the human factor in ecology" to have a clear view of the changing matrix of man, resources and technology. Under the programme, the researchers would identify the stages of economy of various communities living in the area, namely, gatherers, hunters, pastoral groups, shifting cultivators and modern trading, administrative and industrial nuclei.

An interdisciplinary study conducted by biologists would identify the typical eco-system of the region including its geographical characteristics, flora, fauna and human habitation.

Under the "Man and Environment" programme, the University has taken up mapping of the diseases in the region which would help understand the relationship between health, nutrition and ecological factors.

Engineering Academy

A National Academy of Engineering, essentially to supplement the work of the Academy of Science, has been set up at New Delhi. The objectives of the Academy are:

- To provide means to assess the constantly changing needs of the country in engineering and technological spheres aad to encourage such engineering research as may be advisable in the national interest in the near and distant future.
- To provide assistance to Parliament Governments and society in monitoring and guiding growth and development of engineering and technical education.
- To provide a bridge between the work of scientific organizations, universities and industry and other user organizations for planned and forward-looking industrial growth of the country.

The other aims include recognizing outstanding talents in the field of engineering, establishing contacts with similar organizations abroad, and offering the Government assistance on national policies.

The office bearers of the Academy are: **President:** Professor Jai Krishna; **Vice Presidents:** Dr. V.S. Arunachalam and Dr. G.R. Toshniwal; **Secretary:** Professor S.N. Mitra; **Treasurer:** Professor A.B. Bhattacharya; **Foreign Secretary:** Professor G.S. Sanyal; **Other Members of the Governing Council :** Professor Ashok Chandra, Dr. Bharat Singh, Dr. A.M. Michael, Professor B.R. Nag, Dr. N.M. Swani, Dr. S. Varadarajan and Colonel S.P. Wahi. The Council will also have representatives from the Union Government, the AICTE, other Indian academies and the Indian Science Congress Association.

Central Assistance for Sri Padmavathi Women's Varsity

The University Grants Commission (UGC) is reported to have sanctioned a grant of Rs. 75 lakhs to the Sri Padmavathi Women's University during the 7th Plan period. The university, which was recognised by the UGC in March this year, had sent proposals of Rs. 1.5 crores as a grant.

According to Vice-Chancellor, Dr. (Mrs). K. Rajyalakshmi, out of Rs. 75 lakhs UGC grant, a sum of Rs. 38.5 lakhs would be spent on books, equipment and journals. She said that the State Government and the UGC will provide Rs. 15 lakhs each for the construction of new buildings on the campus. A proposal seeking a grant of Rs. 50 lakhs for a computer centre has also been sent to the UGC, the Vice-chancellor said.

Gadgets for Guidance

The University Employment Information and Guidance Bureau, Trivandrum, has installed an instant photocopying machine within their Career Information Library to facilitate information seekers get copies of resource material they need. This in-house service has fulfilled a long felt need cutting hours of laborious and painstaking hand copying by students and others. The Bureau has also been equipped with a Color T.V. and Video Casette Recorder to screen and display useful films to provide educational and vocational guidance including entrepreneurship and career development. These equipments have been supplied by the State Directorate of Employment for improving and enhancing the usefulness of the University Employment Information & Guidance Bureau in the Kerala University.

Medical Varsity for Tamil Nadu

A Medical University will soon be set up in Tamil Nadu. A Bill to this effect is reported to have been passed by the State Assembly recently. To be located in the Madras metropolitan area, the new university would ensure uniform standards of education in the field of medicine and research. All Government and private medical colleges as also other institutions conducting postgraduate and diploma courses and awarding diplomas and degrees would come under the jurisdiction of the new university.

7 Andhra Varsity Colleges Declared Autonomous

The University Grants Commission (UGC) in pursuance of the National Policy on Education—1986, has agreed to grant autonomous status to seven colleges in Andhra University. These Colleges are:

1. D.N.R. College, Bhimavaram, 2. Sir C.R.R. College, Eluru; 3. Ch. S.D. St. Theresa's College for Women, Eluru; 4. S.R.V.B.S.J.B. Maharanee College, Peddapuram; 5. Sree Durga Prasad Saraf College of Arts and Applied Sciences, Shreeramnagar; 6. M.R. College for Men, Vizinagram; 7. St. Joseph's College for Women, Waltair.

The Commission took this decision on the recommendation of the Standing Committee constituted in Andhra University for the grant of autonomous status to the colleges affiliated to the university in accordance with the revised guidelines circulated in January, 1987.

Karnataka Plans 3 New Varsities

Separate Universities for medical and technical education are proposed to be set up soon in Karnataka. The State Education Minister, Mr. J. Alva, said that the matter had already been taken up with the Union Government and the University Grants Commission (UGC) and their concurrence is awaited.

He said that an Open University, with a regional Centre in Bangalore, is also proposed to be established in the State. The proposed university would have overall control over private educational institutions.

Devi Ahilya to Train Teachers for CLASS

University Grants Commission (UGC) has installed a computer system in the Department of Education, Devi Ahilya Vishwavidyalaya, Indore for training of teachers under the Project CLASS. The syllabus for computer education in B.Ed. course has been approved. In the current year the Department will start preparing teachers for CLASS project related to computers in schools in India.

HAU Opts for Semester System

The Haryana Agricultural University (HAU) is reported to have decided to introduce semester system for all its undergraduate courses from the ensuing academic session. Fresh admissions would be made according to the new system. However, the existing trimester system would continue for one more year for old students.

College of Technology for Ranchi University

The Ranchi University will soon have a separate College of Technology. A proposal to this effect is believed to have been cleared by the State Government. According to Vice-Chancellor of the University, Dr. Ram Dayal Munda, the College would meet the needs of advanced studies in various technological trades in tribal Bihar.

We Congratulate . . .

(1) Dr. N.C. Mathur who has taken over as Vice-Chancellor of the University of Roorkee, Roorkee.

(2) Prof. K. Ramakrishna Rao, former Vice-Chancellor of Andhra University, who has taken over as Chairman of the Andhra Pradesh Commissionerate of Higher Education.

News from Agril. Varsities

Agricultural Waste—Fuelled Furnace

A mechanical copra dryer utilising heat from agricultural wastes has been developed by the Department of Agricultural Processing Tamil Nadu Agricultural University (TNAU), Coimbatore. It consists of an agricultural waste-fuelled furnace, blower and a rectangular shaped holding bin. The unit is provided with rubber wheels for easy transportation. The fire-tube type furnace can generate heat by burning agricultural wastes, including coconut husk and shell. This can produce hot air at any desired temperature upto 90°C, by suitably mixing the hot air with the ambient air through adjustable butterfly valve. The field tests have shown that a batch of 2500 nuts at 50% (w.b.) can be dried to 7% (w.b.) within a period of 20 hours at an optimum drying air temperature of 65°C.

The cost of copra dryer including all accessories is Rs. 12,000. The cost of drying one tonne of coconut in the mechanical dryer works out to Rs. 356 compared to Rs. 204 by sun drying. In addition, the quality of the dried product was also found to be superior. The drying can be done throughout the year, irrespective of weather conditions.

Workshop on Small Millets

The first All India Small Millet Workshop was held at the Tamil Nadu Agricultural University (TNAU), Coimbatore under the auspices of the Indian Council of Agricultural Research and the School of Genetics, TNAU, recently. The workshop discussed the crop improvement and production strategies of small millets, viz., ragi, tenai, samai, varagu, panivaragu and kudiraviali both at the national and state levels. The improvement of the small millets, especially for small and marginal farming community, was given greater emphasis in the deliberations of the workshop.

Dr. V. Rajagopalan, Vice-Chancellor of TNAU in his inaugural address stressed the importance of ragi and small millets; their improvement and the need for better crop production strategies on low cost technology. The ICAR had also given priority in sanctioning a separate All India Coordinated Crop Improvement Programme for Ragi and Small Millets, he added.

Soil Testing Week

The Department of Soils of the Punjab Agricultural University (PAU) organised a Soil Testing Week to acquaint the farmers of Punjab with the importance of soil testing for judicious use of fertilizers. During this week the staff of the Farm Advisory Service Scheme of the PAU and the officials of the State Department of Agriculture selected two villages in each district for conducting soil survey. In view of the high cost of fertilizers the farmers were motivated to get their soil samples tested and apply fertilizers to their crops on the basis of soil test. The soil testing service was provided free of cost.

Sports News

Raj Shekhar Claims Gold

M.V. Raj Shekhar of Madras University claimed gold medal in 110 M hurdles at the recently concluded Open National Athletic Meet at Mangalore. He registered a timing of 14.6. Sec. as against the record timing of 14.2. Sec.

Other winners at the Open National Meet were :

Silver Medalists

1. Monica Fernandez	Madras Univ.	100 M. Hurdles
2. Nanda Jadbav	Shivaji Univ.	1500 M. Run
3. Nanda Jadhav	Shivaji Univ.	3000 M. Run

Bronze Medalists

1. Meena Gopal	Madras Univ.	100 M. Hurdles
2. Y.N. Singh	B.H.U.	Pole Vault
3. Meena Gopal	Madras Univ.	Heptathlon

News from Abroad

Giant Computer in Florida State University

A New generation of supercomputers, so blazingly fast that it has to be dunked in liquid nitrogen to keep it from melting, was installed at Florida State University recently.

When it becomes fully operational later this year, the ETA-10 supercomputer, which is made by ETA Systems Inc. of St Paul, Minnesota, will inherit the transitory title of the most powerful computer in the world. In theory it will be able to perform ten billion calculations a second, ten times the current limit, hurling brute computational force against some of the most daunting problems in science and industry

The ETA-10 is still in its testing phase. Joe Lannutti, director of the supercomputer Computations Research Institute at Florida State, in Tallahassee, said the operating system, the software that determines how the $ 12.5 million computer handles its tasks, "is not that sophisticated yet." Its use is limited because "it cannot yet serve multiple users on a network," he said, but 150 programmers at ETA Systems and Florida State are hoping to reach that goal this year.

Still, Mr. Lannutti said, the new ETA machine represents an impressive advance in design. 'They have taken a supercomputer that used to be the size of a couple of average-sized rooms here and collapsed it onto a board about the size of a newspaper," he said. "We now have two boards suspended in a stainless steel tank of liquid nitrogen, which keeps them at—195 de. C (—382 deg. F)," said Mr. Lannutti, a professor of high energy particle physics. "It looks sort of like a big toaster with two slots." Two more boards, or central processing units (CPUs) will be installed in Florida later this year.

Mr. Lloyd M. Thorndyke, President and chief executive of ETA Systems, said "Using new technology, we have put it all on one board measuring 16 inches by 22 inches, with 240 chips and the equivalent of one and a quarter miles of wiring." "And it offers three times the performance," he said.

Also, the ETA-10 has a vast internal memory capacity, up to 288 million "words" of 64 bits each. "This is enough space to hold the information contained in roughly 63 copies of the Manhattan white pages telephone directory," Mr. Thorndyke said. The trick of getting fewer chips to do even greater work is called large-scale integration, or packing circuits much more densely on each chip's wafer of silicon.

Automatic Solar Stock Feeder

A horse breeder, Mr. Graham Kendall of Australia has developed an automatic livestock feeding system. Developed in Western Australia (WA) the system uses solar energy to regulate the supply of feed to farm animals. It can be used in stables, dairies, intensive piggeries and in open paddocks.

The unit could be programmed to dispense a controlled amount of concentrate feed at specific times of the day or night without supervision. That is, the owner can dispense with Labour-intensive daily or twice-daily feeding, having only to fill the machine on a weekly to fortnightly basis. The machine is powered by batteries which in turn are charged by an array of solar collecting panels.

An automated in-stable feeder, using the same technology, was in the final stages of development.

Further details can be obtained from Ausfeeders, PO Box 7330, Cloisters Square, Perth WA 6000, Australia.

ANNAMALAI UNIVERSITY

NOTIFICATION

Applications are invited for admission to the following courses for the academic year 1987-88.

(i) M.P.E.S.
(ii) M.P.Ed.
(iii) M. Phil. in Physical Education.

The applications along with prospectus can be had from **the Registrar, Annamalai University, Annamalainagar- 608 002** on payment of Rs. 25/- in person or through a demand draft payable on any bank at Annamalainagar/Chidambaram with a self-addressed envelope of size 30 cm × 13 cm and stamped to the value of Rs. 1.80 along with a requisition specifically stating the course for which the application is required. The application form together with the prospectus will be issued from 25th May, 1987.

The last date for the receipt of filled in applications by the University is **30-6-87**.

No. K2/8/87
Annamalainagar
Dated : 11-5-87.

R. Rajamanickam
REGISTRAR

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
June 1-15, 1987	Course on Computer Applications in Social Sciences	To expose the participants to fundamentals of computer, computer processing, FORTRAN Language and foundation of data processing and quantification methods.	Centre for Social Studies, Surat.	The Course Director, Centre for Social Studies, South Gujarat University Campus, Surat - 395 007.
June 1-30, 1987	Summer School in Plasma Physics	To give broad exposure of plasma physics to the students of M.Sc. in Physics and fresh research scholars	Department of Physics, Ravishankar University, Raipur (M.P.)	Dr. S. Guha, Convener, Dept. of Physics, Ravishankar University, Raipur (M.P.)
July 3-4, 1987	National Symposium on Development of India's Mineral & Fuel Resources	To discuss the entire spectrum of mineral sector—metallic and non-metallic minerals, coal, ground water, oil and natural gas.	Department of Applied Geology, Indian School of Mines, Dhanbad.	Prof. K.L. Rai, Convenor, Diamond Jubilee National Symposium, Department of Applied Geology, Indian School of Mines, Dhanbad - 826004.
July 22-24, 1987	15th National Conference on Fluid Mechanics and Fluid Power	To bring together researchers and designers, working in diverse fields like Mechanical, Civil, Power, Aeronautical and Chemical Engg. besides Mathematics and Physics to review the state of the art and the recent developments.	Regional Engineering College, Srinagar in collaboration with National Society of Fluid Mechanics and Fluid Power.	Dr. A.M. Bhat, Organising Secretary, 15th National Conference on Fluid Mechanics and Fluid Power, Department of Mechanical Engineering, Regional Engineering College, Srinagar 190 006.
November 16-20, 1987	Seventh National Symposium on Radiation Physics	To provide a forum for a collective discussion and identification of the emerging new directions in the field of Radiation Physics	Department of Physics, Mangalore University in collaboration with the Indian Society for Radiation Physics	Dr. N. Lingappa, Convener, Programme Committee, NSRP-7 and Head, Department of Physics, Mangalore University, Mangalore.
November 26-28, 1987	**International Seminar on Instrumental Methods of Electro-Analytical Techniques.**	**To provide a forum to research workers and practitioners for exchange of information and technical perceptions in instrumental methods of electro-analysis.**	**Indian Institute of Science, Bangalore.**	**Prof. M.H. Dhananjaya Principal and Chairman of the Organising Committee, S.J. College of Engg., Mysore.**
December 7-11, 1987	**Seventh Triennial International Conference on Thin Films. (ICTF-7)**	**To take stock of recent progress in the field of science, technology and applications of their films.**	**Indian Institute of Technology, New Delhi, in collaboration with IUVSTA Thin Film Division and Indian Vacuum Society.**	**Dr. Lalit Malhotra, Secretary, ICTF-7, Thin Film Laboratory, Deptt. of Physics, Indian Institute of Technology, New Delhi-110016.**
December 16-18, 1987	**International Symposium on Electronic Devices, Circuits and Systems**	**To provide a forum to research workers all over the world for exchange of information and technical perceptions in electronic devices, circuits and systems.**	**Indian Institute of Technology, Kharagpur**	**Prof. N. B. Chakravarti, Department of Electronics and Electrical Communication Engineering, Indian Institute of Technology, Kharagpur - 721302**

INDIAN COUNCIL FOR CULTURAL RELATIONS

Applications are invited for the Post of Director, Indian Cultural Centre abroad. Qualifications and Experience required :

ESSENTIAL

B.A. (Hons.) or M.A. from a recognised University; sound knowledge of Indian History & Culture and proficiency in at least one Modern Indian Language. About 10 years experience of work in Public Relations/Administration in Govt., academic/cultural organisation or of teaching at University level. Qualities of initiative, drive and leadership; ability to deliver lectures in English on cultural, economic and social aspects of Indian life.

DESIRABLE

Experience of work/travel abroad, knowledge of a foreign language other than English.

AGE

Between 35-50 years.

Qualifications/Age limits relaxable at the discretion of the Council.

JOB REQUIREMENTS

To hold over-all charge of an Indian Cultural Centre abroad and in that capacity to organise Indian Dance, Music and Language classes with the help of teachers, performances of Indian Dance and Music, film shows, lectures/seminars and discussion on India, Exhibitions of Indian books, photographs, paintings and other art forms & deliver lectures on India etc.

ENTITLEMENTS

Pay in the revised Scale of Rs. 3000-100-3500-125-4500 plus Foreign Allowance, Representational Grant, Children Education Allowance, Medical facilities, rent free accommodation, International Passage for Director, spouse and upto three dependent children, and baggage allowance as admissible under the rules. Appointment will be on contract/deputation for a period of three years. Applications typed in English should be sent through proper channel indicating seriatim name, address, date of birth, marital status, educational qualifications, languages known, experience, present post, basic pay and scale of pay and other relevant information. Advance copy may be sent to the **Deputy Director General (A), Indian Council for Cultural Relations, Azad Bhavan, Indraprastha Estate, New Delhi - 110 002 latest by 25th June, 1987.**

SCHOOL OF PLANNING AND ARCHITECTURE

(Deemed to be a University)

4 Block-B, Indraprastha Estate, New Delhi-110 002

APPLICATIONS ARE INVITED FOR ADMISSION TO ACADEMIC PROGRAMMES FOR THE SESSION 1987-88 COMMENCING FROM 1ST AUGUST 1987

A. **MASTER'S PROGRAMMES** (3 Semesters) **IN:**

- I. **PLANNING** (Open to Architects/Engineers/Social Scientists) with specialisation in Urban and Regional Planning. Transport Planning and Housing.
- II. **BUILDING ENGINEERING AND MANAGEMENT** (Open to Engineers/Architects).
- III. **ARCHITECTURE** (Open to Architects) with specialisation in: (i) Urban Design; (ii) Architectural Conservation.
- IV. **LANDSCAPE ARCHITECTURE** (Open to Architects/Landscape Architects Town and Country Planners).

B. **PRE-LANDSCAPE ARCHITECTURE** (2 Semesters) with scholarship of Rs. 600 per month.

This is a preparatory Course which enables admission to the Master's Programme in Landscape Architecture to Candidates having Master's qualification in Agriculture/Horticulture/Forestry/Botany/Ecology/Geology/Geography.

ELIGIBILITY

With Scholarship of Rs. 1000/- per month for Master's Programmes.

(a) Candidates having Architecture/Engineering background must have valid GATE SCORE.
(b) Candidates with Social Science background must have qualified in the All India Examination of the University Grants Commission.

NOTE: Candidates admitted once to a Master's Programme and have availed of Scholarship are not eligible for admission in the School on the same score card.

Subject to availability of seats candidates with prescribed qualifications in Architecture/Engineering who have not qualified in GATE may be considered for admission without Scholarship.

Candidates who are awaiting the results of the qualifying examination are also eligible provided they complete the admission requirements by **31st July 1987**, and no extension will be granted under any circumstances.

RESERVATION OF SEATS

Five per cent of the sanctioned intake is reserved for SC/ST candidates. Seats are also reserved for candidates sponsored by the Central/State Government Statutory Organisations as well as Institutions.

GENERAL INFORMATION

A selected number of candidates in the order of merit for each of the programmes will be called for interview scheduled to be held on 3rd and 4th July 1987 at the School of Planning and Architecture, New Delhi and candidates will be reimbursed one way second class railway fare by the shortest route.

FOREIGN NATIONALS

Self financed foreign nationals should apply to the Government of India through their diplomatic channels.

IMPORTANT DATES

1. Issue of forms commences from (Monday to Friday 9.00 a.m. to 1.00 p.m.) **20-5-1987**
2. Last date for issue of Application Forms against payment of Rs. 30/- in Cash/Crossed Demand Draft on SBI/UCO Bank drawn in favour of 'School of Planning and Architecture' payable at New Delhi
   (a) At School's Counter **12-6-1987**
   (b) By Post **10-6-1987**
3. Last date for receipt of Application Forms by Registered Post **15-6-1987**

NOTE: For detailed information refer to the Information Brochure which will be supplied alongwith the Application Form.

SPA/AE/87/1

REGISTRAR

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Library Science

1. Chandramali, P. *A critical study of growth development and bibliographical control of Indian library and information science literature during 20th Century.* HS Gour. Dr. R.G. Prasher.
2. Satija, Mahendra Pratap. *An investigation into the research methodology of S.R. Ranganathan and his way of exposition of ideas in writing.* HS Gour. Dr. R.G. Prasher.

Psychology

1. Bohra, Neelam. *Non-verbal expressions diagnostic indicators of psychopathology.* BHU. Dr. M.K. Mandal.
2. Dey, Rebha Rani. *A comparative study of cognitive development in some sub-cultural groups.* BHU. Dr. R.C. Mishra.
3. Mishra, Sandhya. *Facial effect recognition in schizophrenics.* BHU. Dr. M.K. Mandal.
4. Pandey, Madhurendra Bhushan. *Diagnostic evaluation.* BHU. Dr. R.R. Tripathi.
5. Patiraj Kumari. *A psychological study of women force in industry.* BHU. Dr. A.P. Singh.
6. Sheela Devi. *A study of coal mines employees.* BHU. Dr. A.P. Singh.
7. Yadav, Ram Nagina Singh. *Diagnostic testing.* BHU. Dr. R.R. Tripathi.

Sociology

1. Ramanaiah, T.B.B.S.V. *A study on non-compliance to treatment among patients suffering from mental illness.* Shivaji. Dr. S.N. Pawar.

Political Science

1. Adityavir. *Factional politics in Akali Dal.* BHU. Prof. P.D. Kaushik.
2. Agnihotri, Kamini. *Bhartiya rajnitik vyavastha mein dabav samoohon kee bhoomika.* HS Gour. Dr. R.P. Gautam.
3. Bhatnagar, Nidhi. *Manav adhikaron kee vartman sthiti Dakshin Africa mein rangbhad niti ke vishesh sandarbh mein ek vishleshnatmak adhyayan.* HS Gour. Dr. R.C. Dubey.
4. Choubey, Rajendra Kumar. *Sambhagiya vikas mein nagariya prashasan ka yogdan: Surai Nagarpalika ke sangathnatmak kriyanavyan evam rajasta prapti ke vishesh sandarbh mein.* HS Gour. Dr. R.P. Gautam.
5. Deorwer, Vibha. *The role of India in the non-alignment movement,* 1975-86. HS Gour. Dr. R.C. Dubey.
6. Diwakar, Indira. *Swatantrayoprant Bhartiya rajniti mein dharam kee bhoomika.* HS Gour. Dr. R.P. Gautam.
7. Dubey, Kamla. *Pt. Jawaharlal Nehru ke vaiyaktik adhar evam nitiyon ka Bhartiya rajniti per prabhav.* HS Gour. Dr. G.P. Nema.
8. Engle, Kalpana. *M.P. mein Panchayati Raj ka kriyanvayan: Sagar sambhag ke sandarbh mein.* HS Gour. Dr. G.P. Nema.
9. Mishra, Prem Shanker. *Performance appraisal of management in public enterprises in India.* HS Gour. Dr. R.C. Dubey.
10. Pandey, Urmila. *Socialist movements and Acharya Narendra Dev.* BHU. Dr. C.K. Padia.
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5. Trivedi, Jayprakash Mukundlal. *A study of social structure of Patidar migrants living in Anand and Nadiad cities of Gujarat State.* Patel.

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Eligibility

A graduate of a recognised University, having secured 55% in the B.A., B. Com., B.B.A. or 60% in the B.Sc., B.E., B.Sc. (Agri.) or an equivalent degree.

Last date for the receipt of filled in applications by the University is **25-6-87.**

The University will not be responsible for any postal delay.

R. Rajamanickam
REGISTRAR

No. K2/6/87
Annamalainagar,
Dated : 11-5-87.

ANNAMALAI UNIVERSITY

NOTIFICATION

Admission to M.B.A. Course (Part-time) 1987-88

Applications are invited for admission to the M.B.A. course (Part-time) for the year 1987-88. Application form and prospectus can be had from **the Registrar, Annamalai University, Annamalainagar-608 002** on written requisition by enclosing (i) a demand draft for Rs. 100/- (Rupees one hundred only) drawn in favour of **the Registrar, Annamalai University** payable on any bank at **Annamalainagar/Chidambaram** and (ii) a self addressed envelope of size 30 cm x 13 cm affixing postage stamps to the value of Rs. 1.80. The application form together with the prospectus will be issued from 25th May, 1987.

Qualification for Admission

1. A degree in any discipline with II class from a recognised University and with three years experience in managerial cadre in a manufacturing, marketing, banking organisations, Government Departments, or Government Undertakings.
2. The candidates sponsored by the organisations will be preferred.

The last date for receipt of filled in application forms by the University is **30-6-87.**

The University will not be responsible for any postal delay.

No. K2/7/87
Annamalainagar
Dated : 11-5-87.

R. Rajamanickam
REGISTRAR

ANNAMALAI UNIVERSITY

NOTIFICATION

One Year Post B.Sc. Diploma Course in Computer Science and Applications

Applications are invited for admission to one year Post B.Sc. Diploma Course in Computer Science and Applications for the year 1987-88. For application form and prospectus, **the Registrar, Annamalai University, Annamalainagar-608 002** may be addressed by enclosing (i) a demand draft to the value of Rs. 35/- (Rupees thirty five only) drawn in favour of **the Registrar, Annamalai University** payable on any bank at **Annamalainagar/Chidambaram** and (ii) a self-addressed envelope of size 30 cm x 13 cm stamped to the value of Rs. 1.80. The application form together with the prospectus will be issued from 25th May 1987.

Ten seats are reserved for the candidates from outside the State of Tamil Nadu on all India basis.

Qualification

B.Sc. degree in Mathematics or Statistics or Physics and B.Sc. (Applied Science).

Last date for the receipt of filled in applications by the University is **27th July, 1987.**

The University will not be responsible for any postal delay.

No. K2/4/87
Annamalainagar
Dated : 11-5-87.

R. Rajamanickam
REGISTRAR

KARNATAKA REGIONAL ENGINEERING COLLEGE

SURATHKAL (D.K. DIST.)

P.O. SRINIVASNAGAR-574 157, KARNATAKA STATE

NOTIFICATION

ADMISSION TO POST-GRADUATE COURSES FOR 1987-88

Applications are invited for admission to the following three semester (Eighteen months) Post-graduate M. Tech. Courses :

- (i) Marine Structures
- (ii) Industrial Structures
- (iii) Industrial Electronics
- (iv) Heat Power
- (v) Chemical Plant Design
- (vi) Hydraulics & Water Resources Engg.
- (vii) Process Metallurgy

Minimum Qualifications

The admission is open to candidates who have passed the B.E./B.Tech./B.Sc. Engineering Degree Examination with not less than 50% of marks in the aggregate in the appropriate branch of Engineering of the Mangalore University or any other Indian University or any other qualification recognised by the University of Mangalore as equivalent thereto.

Candidates who have passed the following examinations are also eligible for admission:

1. AMIE Examination in the appropriate subject.
2. For Industrial Electronics: M.Sc. Physics with Electronics or Solid State Physics.
3. (a) For Process Metallurgy: M.Sc. (Chemistry and/or Inorganic and/or Physical and/or Analytical or Applied Chemistry, or Industrial Chemistry.
   (b) Master's Degree in Mineral Beneficiation/Mineral Dressing/Ore Dressing of any recognised University.
   (c) M.Sc. (Applied Science) with Material Science subjects of any recognised University.
   (d) AIM (London) A.M.I.I.M.
4. For Chemical Plant Design : A.M.I. Chem. E.

The College has well equipped laboratories with specialised equipments procured under UNESCO assistance. The Post-graduate courses cover academic work at the College and Practical Training and Project work in Industries/Research Organisations/Projects/College.

Post-graduate Scholarships of the value of Rs. 1000/- per month will be granted only to those students who have passed the GAT Examination. A few candidates sponsored by the collaborating Industries and Sister Organisations will be considered for admission on non-stipendiary basis.

15% of the seats are reserved for candidates belonging to Scheduled Castes and 7½% for Scheduled Tribes.

Candidates who possess the qualifications outlined above may obtain Information Bulletin together with application form and detailed instructions including eligibility conditions, etc. by sending Rs. 40/- by way of fresh crossed Indian Postal Order (Rs. 10/- for Scheduled Caste/Scheduled Tribe) payable to the Principal, Karnataka Regional Engineering College, Surathkal at Srinivasnagar-574 157 along with self addressed unstamped envelope of the size 23 cm. x 11 cm. superscribing on the envelope "Application for Post-graduate Courses". This amount includes the Registration fee also. Those students who have qualified in the GAT Examination and have appeared for B.E./B.Tech. Examination, but whose results are not yet announced, are also eligible to apply.

The application forms will be available from 1-6-1987. The last date for issue of application forms by post will be **15-6-1987**.

The last date to receive the filled-in application is **20-6-1987**. The Scheduled Caste/Scheduled Tribe candidate should clearly indicate that they belong to the particular category. Candidates seeking admission for more than one course should obtain and submit separate application for each course.

Dr. T. Ramchandran
PRINCIPAL

Srinivasnagar,
Date : 9-5-1987

CLASSIFIED ADVERTISEMENTS

ADMISSIONS

Department of Physics
GUJARAT UNIVERSITY

Ahmedabad 380 009

ADMISSION TO ONE YEAR DIPLOMA COURSE IN SPACE SCIENCES

Gujarat University conducts a one year Post-Graduate Diploma Course in Space Sciences and their Applications in collaboration with Physical Research Laboratory, Ahmedabad and Space Applications Centre (ISRO) Ahmedabad. Minimum qualifications for admission being First or High Second Class M.Sc. (Physics) or B.E./B. Tech. with good background of electronics. Each of the students admitted, subject to a maximum of 15; will be paid Rs. 600/- per month as stipend.

Students are admitted on the basis of a written test and an interview to be held in July, 1985. Some of the candidates called for admission test/interview will be given single IInd Class return fare. Candidates who have appeared in the qualifying examination may also apply for admission. Such candidates will be admitted provisionally pending their results. Two seats are reserved for Scheduled Castes/Scheduled Tribes and one seat is reserved for other backward communities.

Application forms can be obtained by paying Rs. 2/- Indian Postal Order (IPO) addressed to the REGISTRAR, GUJARAT UNIVERSITY, AHMEDABAD 380 009. The envelope should clearly indicate 'APPLICATION FOR SPACE SCIENCE DIPLOMA COURSE' as well as full postal address for correspondence. Application from duly filled should reach the Head, Department of Physics, Gujarat University, Ahmedabad 380 009 by **end of July, 1987.**

S.V. Shastri
REGISTRAR

ANNAMALAI UNIVERSITY

Notification

Applications are invited for admission to the following courses for the academic year 1987-88.

	Cost of application form & Prospectus
1. M.A. Degree	Rs. 25/-
Branches	
1. Philosophy, 2. Psychology, 3. History, 4. Political Science, 5. Economics, 6. English, 7. Tamil, 8. Sanskrit, 9. Linguistics, 10. Sociology, 11. Population Studies, 12. Development Studies, 13. Applied Economics.	
2. M.Sc. Degree	Rs. 25/-
Branches	
1. Mathematics, 2. Statistics, 3. Physics, 4. Chemistry, 5. Botany, 6. Zoology, 7. Geology, 8. Marine Biology & Oceanography.	
3. M. Com. Degree (Both English & Tamil Medium)	Rs. 25/-
4. M.O.L. (Tamil) Degree	Rs. 25/-
5. B.Ed. Degree	Rs. 25/-
6. M.Ed. Degree	Rs. 25/-
7. M. Phil Degree	Rs. 25/-
8. Post Graduate Diploma Courses	Rs. 25/-
1. Tourism, 2. Archives Keeping, 3. Translation Administrative Drafting and Reporting in Hindi, 4. Econometrics, 5. Gandhian Thought, 6. Ramalinga Philosophy, 7. Guidance and Counselling, 8. Corporate Secretaryship, 9. Applied Linguistics, 10. Insurance, 11. Public Administration, 12. Banking law and Practice, 13. Data Management, 14. Population Education.	
9. Post M.Sc. Diploma Courses	Rs. 25/-
1. Spectroscopy, 2. Magneto Science, 3. Hydro Geology.	
10. Bachelor of Library and Information Science	Rs. 25/-
11. Certificate Course in Library Science	Rs. 10/-
12. Title of Isaimamani	Rs. 10/-
13. Title of Natanamamani	Rs. 10/-
14. B. Music	Rs. 10/-
15. Diploma Courses	Rs. 10/-
1. Tamil, 2. Advanced Diploma for Proficiency in French, 3. French, 4. Linguistics, 5. Languages (Tamil, Telugu, Kannada, Malayalam Sanskrit, Hindi).	
16. Certificate Courses	Rs. 10/-
1. French, 2. Journalism, 3. Folklore, 4. Reprography and non-book materials, 5. Language (Tamil, Telugu, Kannada, Malayalam, Sanskrit, Hindi).	

For application form and prospectus, **the Registrar, Annamalai University, Annamalainagar - 608 002** may be adressed by enclosing (i) a demand draft to the value indicated against each course, drawn in favour of **the Registrar, Annamalai University** payable on any bank at **Annamalainagar/Chidambaram** and (ii) a self addressed envelope of size 30 cm x 13 cm stamped to the value of Rs. 1.80 with the name of the course for which the application form is required superscribed boldly on the envelope. The name of the course should be clearly indicated in the requisition letter. The application form together with the prospectus will be issued from **25th May, 1987.**

The last date for receipt of filled in application by the University is **25-6-87.**

The University will not be responsible for any postal delay.

R. Rajamanickam
REGISTRAR

No. K2/5/87
Annamalainagar,
Date : 11-5-87.

ANNAMALAI UNIVERSITY

DIRECTORATE OF DISTANCE EDUCATION

Admission Notification for the year 1987-88

The Directorate offers the following courses of study. Admission is open to persons all over India.

I. Professional Courses

1. B.Ed., (English and Tamil Media). Duration : One year.

Eligibility : (i) Any graduate who is now working in schools recognised by the Department of School Education; and
(ii) Any Post-graduate.

2. M.Ed., (English and Tamil Media).
Duration : One year.
Eligibility : B.Ed./M.B.Ed., or an equivalent degree. Preference will be given to teachers working in High Schools.

II. Under Graduate Courses

Duration : Three years.

3. B.A. Degree in History (English & Tamil Media).
4. B.A. Degree in Sociology (English Medium).
5. B.A. Degree in Psychology (English Medium).
6. B.A. Degree in Economics (English Medium).
7. B.A. Degree in English.
8. B. Lit. Degree in Tamil.
9. B. Com. Degree (English & Tamil Media).
Eligibility : A pass in Pre-University/Higher Secondary Examination/Second Year Foundation course or an equivalent examination.
10. B.Sc. Degree in Mathematics (Engligh Medium).
Eligibility : A pass in Pre-University/Higher Secondary Examination/Second Year Foundation course or an equivalent examination with Mathematics as one of the subjects.

III. Post Graduate Courses

Duration : Two years.

11. M.A. Tamil
Eligibility : B.A./B.Sc. with Tamil under Part I or III or B. Lit.
12. M.A. English
Eligibility : B.A./B.Sc. with English under Part II or III.
13. M.A. History (English & Tamil Media).
Eligibility : B.A./B.Sc.
14. M.A. Economics (English Medium).
Eligibility : B.A., Economics or B.Sc., Statistics/B.Sc., Mathematics with 50% of marks in Part III of the B.Sc. Degree.
15. M.A., Psychology (English Medium).
Eligibility : B.A. (Psychology) or B.Sc. with 50% of marks in Part III or B.A. (Humanities of Social Sciences) with 45% of marks in Part III.
16. M.A. Sociology (English Medium).
Eligibility : B.A./B.Sc.
17. M.Sc., Mathematics (English Medium).
Eligibility : B.Sc., Mathematics/B.Sc. Statistics.
18. M.Sc., Physics (English Medium).
Eligibility : B.Sc., Physics.
19. M.Sc., Chemistry (English Medium).
Eligibility : B.Sc., Chemistry.
20. M.Sc., Zoology (English Medium).
Eligibility : B.Sc., Zoology.
21. M. Com. (English and Tamil Media).
Eligibility : B. Com./B.B.A./B.A., Corporate Secretaryship / B.A. Co-operation.

IV. (a) Law Degree Course

22. B.A.L. (Bachelor of Academic Laws) (English Medium).
Duration : Three years.
Eligibility : Any degree.

IV. (b) Diplomas in Law (English Medium)

Duration : One year.

23.(a) Diploma in Company Law with Banking Law and Practice.
(b) Diploma in Labour Laws with Administrative Law.
(c) Diploma in Law of Taxation.
(d) Diploma in Management Laws.
(e) Diploma in Criminology and Administration of Criminal Justice.
(f) Diploma in Insurance Laws.
Eligibility : Any Degree.

V. Management Courses

24. Diploma Courses in Management (English Medium).
Duration : One year.
(a) Diploma in Production Management
Eligibility: A degree in B.E./M. Com./M.B.A./M.A. Economics / M.Sc., Mathematics/M.Sc., Statistics Diploma holders in Engineering are also eligible.
(b) Post-Graduate Diploma in Materials Management.
(c) Post-Graduate Dipoloma in Business Administration.
(d) Post-Graduate Diploma in Personnel Management.
(e) Post-Graduate Diploma in Marketing Management.
(f) Post-Graduate Diploma in Financial Management.

Eligibility : All Graduates.

VI. Foundation Courses: (English and Tamil Media).

25. **First Year** : Eligibility : Pass in 10 year SSLC (New Pattern) or an equivalent examination/failed in 11 year SSLC.

Second Year : Eligibility : Pass in 11 year SSLC or an equivalent examination.

Caution

Some private Institutions/Individuals posing as our agents are allegedly collecting fees, issuing application forms and promising admission to our courses. The Directorate has no such agents and takes no responsibility for their actions. CANDIDATES ARE THEREFORE ADVISED TO CORRESPOND DIRECTLY WITH THE DIRECTORATE ONLY.

THE CANDIDATES ARE ADVISED TO APPLY DIRECT TO THE DIRECTORATE INDIVIDUALLY FOR APPLICATION FORM AS WELL AS FOR ADMISSION. APPLICATIONS FOR ADMISSION RECEIVED THROUGH TUTORIALS OR ANY OTHER AGENCY WILL BE SUMMARILY REJECTED.

The cost of application form and prospectus for each course is Rs. 15/-.

APPLICATION FORM AND PROSPECTUS CAN BE HAD FROM THE DIRECTOR, DIRECTORATE OF DISTANCE EDUCATION, ANNAMALAI UNIVERSITY, ANNAMALAINAGAR-608 002 by sending a requisition along with a crossed Postal Order for Rs. 15/- payable at Annamalainagar or a Demand Draft for Rs. 15/- drawn in favour of the Registrar, Annamalai University, on the State Bank of India, Chidambaram or Indian Bank, Annamalainagar or Bank of Madura, Annamalainagar mentioning clearly the name of the course for which the application form is required and a self-addressed cover of size 23 cm x 15 cm. Outstation Demand Drafts, Cheques and Money Orders are not accepted.

The last date for receipt of filled in application is **31st July, 1987.**

Study Centres have been opened at the following places for the benefit of the students:

1. A-30, Annanagar,
Madras-600 102.
(Phone No. 610270)

2. National College Higher Secondary School Campus,
Trichy-620 002

3. 15, Dr. Subbarayan Street,
Salem-636 001.

4. 70, Ammasi Madam Street,
(Near T.T.C. Bus Stand),
Meenakshipuram,
Nagercoil-629 001.

5. 47, Basant Enclave,
New Delhi-110 057
(Phone No. 607407 OYT)

6. No. 4, Thiagarajapuram,
Vellore-632 001.

7. 276, Annanagar,
Madurai-625 020.

8. D.D.E. Building,
Annamalai University,
Annamalainagar 608 002.

Liaison Officers at the different Study Centres may be contacted for any further clarification regarding admissions. Applications can be had from the Study Centres also on Payment of Rs. 15/- by Postal Order or Demand Draft drawn in favour of 'The Registrar, Annamalai University' as instructed above. Study Centres will remain closed on all Tuesdays, Second Mondays and all other Public Holidays.

Those who want to get application by post should apply to the Directorate only and not to the Study Centres.

Filled in applications should however be sent only to the Director, Directorate of Distance Education, Annamalai University, Annamalainagar, South Arcot District, Tamilnadu, Pin Code : 608 002. **In no case filled in applications should be sent to the Study Centres.**

Application and Prospectus can be had from the Directorate of Distance Education, Annamalai University, Annamalainagar and Study Centres from 1-6-1987.

Note

I. Those who are willing to get the application by post are requested to send Rs. 7/- additionally by a Demand Draft in favour of the Registrar, Annamalai University for sending the application by Registered Post.

II. Admission cannot be claimed as a matter of right and the Directorate reserves to itself the right of admission.

Dr. M. Radhakrishnan
DIRECTOR

UNIVERSITY OF BIHAR

MUZAFFARPUR

Advertisement Notice

Applications are invited for award of Junior Research Fellowship of the U.G.C. from the candidates who have passed the N.E.T. examination conducted by the U.G.C., New Delhi and hold at least high second class Master's degree in Chemistry, Botany, History, Hindi, Geography, Economics, Political Science and Persian. There are two Research Fellowships for each of the first four subjects and one each for the remaining subjects. The Junior Research Fellowship carries fellowship @ Rs. 1000/- per month plus contingency grant as per U.G.C.'s rules.

The applications on plain paper with details of the academic qualification, research work done or being pursued if any, particulars of N.E.T. examination passed, date of birth, permanent and present addresses and attested copies of marksheets for all examinations passed alongwith proof of research work done or undertaken must reach the undersigned latest by the **15th June, 1987.**

M. Jha
DEVELOPMENT OFFICER

APPOINTMENTS

GURU NANAK DEV UNIVERSITY

AMRITSAR

(ESTABLISHMENT BRANCH)

Advertisement No. 5/87

Applications are invited for the following post(s) on prescribed form obtainable at a price of Rs. 2/- from the Office of the Registrar by making written request accompanied by self-addressed 90 paise stamped envelope of 23 x 10 cms so as to reach this office by **6-6-1987** alongwith Crossed Indian Postal Order(s) of Rs. 10/- (non-refundable) drawn in favour of the Registrar, Guru Nanak Dev University, Amritsar.

Persons already in employment must send their applications through their employers. Candidates from within India may not be considered in absentia. Higher start in the grade may be given depending upon qualifications and experience.

Professors in Electronics (Two): (Grade: Rs. 1500-2500).

Qualifications

Essential : Master's Degree in Electronics and Communication Engineering with specialisation in any of the following:

(a) Communication Systems.
(b) Instrumentation.
(c) Circuits and Systems.
(d) Computers/Microprocessors.

Desirable : Ph.D. in Electronics and Communication.

The candidate should possess ten years' experience of teaching and/or research and/or guiding research at Doctoral level or an outstanding scholar with established reputation who has made significant contribution to knowledge.

OR

An eminent scholar with published work of high quality; actively engaged in research. Ten year's experience of teaching and/or Research. Experience of guiding research at Doctoral level or an outstanding scholar with established reputation who has made significant contribution to knowledge.

Candidates belonging to Scheduled Castes/ Backward Classes of Punjab State when called for interview will be paid travelling allowance according to University rules.

Karnail Singh Thind
REGISTRAR

PANJAB UNIVERSITY

CHANDIGARH

(Advertisement No. 2/87)

Applications are invited for the following posts so as to reach the Registrar, Panjab University, Chandigarh, alongwith postal order of Rs. 10/- by **15-6-1987**. Fourteen days extra time is permissible to the persons who have to submit their applications from abroad:

1. **Professors :** (Rs. 1500-60-1800-100-2000-125/2-2500).

Economics -1, Sociology-1, Psychology-1.

2. **Readers :** (Rs. 1200-50-1300-60-1900). Commerce and Business Management-2 Economics-1 (Temporary but likely to be permanent); German-1; Law-2 (one permanent and one temporary but likely to be permanent); Labour Law-1; Public Administration-2; Sociology-2 (one permanent and one temporary).

3. **Lecturers :** (Rs. 700-40-1100-50-1600). Commerce and Business Management-1; Economics-3; Folk and Punjabi Drama-1; (Deptt. of Indian Theatre); Physical Education-2.

4. **Research Assistant :** (Rs. 550-20-650-25-750).

Commerce and Business Management-2 (one permanent and one temporary but likely to be permanent); Central Asian Studies-1, (temporary-leave vacancy).

5. **Trained Instructor in Drama Performing Arts-1**: (Rs. 700-40-1100-50-1600).

(Deptt. of Indian Theatre).

6. **Instructor in Dance - 1**: (Rs. 500-20-700-25-900). (Deptt. of Music (Hobby Classes).

7. **Research Scholar :** (Rs. 800/- p.m. fixed with an annual contingent grant of Rs. 3,000/-).
Economics-1.

Note: 1. The Vice-Chancellor could place before the Selection Committee names of suitable persons for its consideration alongwith the applications received in response to the advertisement.

2. It is not obligatory on the part of the University to call for interview every candidate who possesses the essential qualifications.

3. The number of vacancies may change.

Detailed instructions, specializations, various allocations and reservations concerning the various posts and other details are available with the applications forms. These can be obtained from the Cashier, Panjab University, Chandigarh personally on payment of Rs. 2/- or by making a written request to the Deputy Registrar (Estt.), Panjab University, Chandigarh accompanied by self-addressed stamped (worth Rs. 3.40) envelope of 23 x 10 cms. and postal order of Rs. 2/- drawn in favour of the Registrar, Panjab University, Chandigarh.

V.V. Samiti's
COLLEGE OF SOCIAL WORK

Vasant Nagar, Jawahar Colony
AURANGABAD - 431 005

Applications are invited alongwith testimonials from the suitable candidates for the following post so as to reach on the above mentioned address on or before **7th June 1987**.

1. **Lecturer :** 3 Posts (Out of 3 posts one Post is reserved for S.T.).

Pay Scale : 700-40-1100-50-1600.

Qualifications and Experience (a) Master's Degree in Social Work with a consistently good academic record with at least first or high second Class (B+) at Bachelor's and Master's Degree.

(b) M. Phil degree or a recognised degree beyond the Master's level or published work indicating the capacity of the candidate for independent research work.

(c) Three years teaching experience at degree level.

SECRETARY

PUNJABI UNIVERSITY
PATIALA

Advt. No. 7/Rect./PRO/87

Applications are invited for the following posts:

1. **Professors:** (One each in the Departments of Bio-technology, Commerce, Computer Science & Application, Forensic Science, Music, Persian, Urdu and Arabic, Psychology, Social Work)

Grade: Rs. 1500-60-1800-100-2000-125/2-2500 (UGC)

Specializations

Biotechnology : Biochemistry/Biotechnology
Commerce : Accounting and Finance
Computer Sc. and Application : Computer Application/Computer Science.
Forensic Sc. : Forensic Science
Music : Patiala Gharana/Bhakti Sangeet
Persian, Urdu and Arabic : Urdu: Modern literature
Psychology: Industrial Psychology/Organisational Psychology

Social Work : Rehabilitation/Social Welfare Services.

2. **Readers :** (One each in the Departments of Biotechnology, Comupter Science and Application, Forensic Science, Psychology, Social Work)

Grade : Rs. 1200-50-1300-60-1900 (UGC)

Specializations

Biotechnology: Enzymology
Computer Sc. and Application : Computer application/Computer Science/Informatics.
Forensic Science: Biology and Serology.
Psychology: Abnormal Psychology/Clinical Psychology
Social Work: Labour Welfare/Social Development Administration.

3. **Lecturers:** (Two each in the Departments of Biotechnology, Commerce, Forensic Science, Psychology and One each in the Department of Library and Information Science, Persian Urdu and Arabic, Social Work).

Grade: Rs. 700-40-1100-50-1600 (UGC)

Specializations

Biotechnology: (i) Metabolism. (ii) Microbial Technology/Microbiology.

Commerce: (ii) Banking Management/Indian Business and Economic Policy. (ii) Taxation and Company Law/Business laws.

Forensic Science : (i) Question Documents and Handwriting Examination. (ii) Toxicology.

Persian Urdu and Arabic : Urdu: Punjabi Culture

Psychology: (i) Experimental Psychology/Psychometry (ii) Social Psychology/Developmental Psychology.

Social Work : Medical and Psychiatric Social Work/Family, Child and Women Welfare.

Note

1. Availability of these positions in existing/proposed departments/disciplines is subject to approval of UGC and University Bodies. They are for the seventh plan period (except for the post of Lecturer in Commerce and Professor, Reader and Lecturers in Psychology) but are likely to to continue.

2. The minimum qualifications/experience for various posts have been prescibred

on the basis of UGC norms. In the case of emerging disciplines, inter-disciplinary qualifications duly supported by relevant teaching/research experience would be acceptable.

3. The areas of specializations as shown for various posts are indicative and not restrictive. Candidates belonging to other areas of specializations if found suitable, can also be selected.

4. Details of qualifications, etc. will be supplied alongwith application forms.

5. Number of posts may be increased or decreased.

6. The qualifications may be relaxed in case of poor response.

7. The University reserves the right not to fill up any of the posts advertised.

APPLICATION FORMS can be had from the Head, Publication Bureau, Punjabi University, Patiala on payment of Rs. 5/- at the counter OR by sending IPO's of Rs. 5/- in favour of the Registrar, alongwith self-addressed envelope of the size 25 × 10 cms. with 3.40 paise postage, superscribing on it REQUEST FOR APPLICATION FORM FOR THE POST OF ——————.

In-service candidates should apply through proper channel with an advance copy to the University.

Application form, complete in all respects, should reach the Registrar by **18-6-1987.**

REGISTRAR

THE UNIVERSITY OF BURDWAN

RAJBATI : BURDWAN
WEST BENGAL

Advertisement No. 18/86-87

Dated : May 11, 1987

Applications in the prescribed form are invited for the following posts in the approved scales of pay (viz., Professorship: Rs. 1500-60-1800-100-2000-125/2-2500/- ; Readership: Rs. 1200-50-1300-60-1900/-; Lectureship : Rs. 700-40-1100-50-1600/-) PLUS dearness and other allowances and pensionary benefits according to the Statute of the University.

(A) Professorship in Philosophy
(B) Readership in Hindi
(C) Readership in English
(D) Readership in Library & Information Science
(E) Readership in Political Science
(F) Readership in Sociology
(G) Lectureship in Hindi
(H) Lectureship in Economics

Minimum Qualification

For **Professorship**

An eminent scholar with published work of high quality actively engaged in research. About ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

For **Readership**

Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

At least five years' experience of teaching and/or research provided that at least three of these years were as lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding record of Teaching/Research.

For **Lectureship**

(a) A Doctor's degree or research work of an equally high standard; and

(b) Good academic record with at least Second Class (C in the seven point scale) Master's Degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing inter-disciplinary Programmes, the degrees in (a) and (b) above may be in relevant subjects;

Provided that if the Selection Committee is of the view that research work of a candidate as evident either from his thesis or from his published work is of very high

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UNIVERSITY OF KERALA

TRIVANDRUM

No. PR. 1516/10/87 **Dated : 12-5-1987**

NOTIFICATION

Applications are invited from qualified candidates for appointment to the following posts in the University:

Sl. No.	*Name of Post*	*Department*	*No .of Posts*	*Remarks*
1	Professor	Mathematics	1	Ezhava Reservation
2	Reader (Spl: Space Physics)	Physics	1	Open Merit
3	Reader (Spl: Cytochemistry/ Molecular Genetics)	Botany	1	Open Merit (post sanctioned under U.G.C. Special Assistance Programme)
4	Reader	Education	1	Muslim Reservation
5	Lecturer	Commerce	1	Open Merit
6	Lecturer	Chemistry	1	SC/ST Reservation
7	Senior Technical Assistant	Physics	1	Ezhava Reservation
8	Technical Assistant	Physics	1	Open Merit

Application forms and details regarding qualifications, age, scales of pay, etc. can be had on request from the Deputy Registrar (Admn.), University of Kerala, Trivandrum-695 034 on production of a challan receipt for Rs. 2/- (Rs. Two only) remitted under KUF account in any branch of the SBT or crossed IPO (in the case of persons outside the State) for the amount payable to the Finance Officer, University of Kerala, Trivandrum-695 034 specifying the post for which application form is required.

The last date for receipt of completed applications is **18-6-1987.**

S. K. Rajagopal
REGISTRAR

standard, it may relax any of qualifications prescribed in (b) above;

Provided further that if a candidate possessing a Doctor's Degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record, (weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's Degree or give evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increment until he fulfils these requirements.

Desirable Qualifications : Specialisation or Proficiency

For "A"	Logic and Phenomenology.
For "B"	Any branch of the subject.
For "C"	Shakespeare criticism and scholarship/principles of literary criticism (Plato to Sidney)/Satire (Prose and verse) Dryden to Byron/Renaissance.
For "D"	Any branch of the subject.
For "E"	Advanced Political Theory/ Indian Politics/Political Sociology/Local Government in India.
For "F"	Any branch of the subject.
For "G"	Any branch of the subject.
For "H"	Statistics and Econometrics.

The choice of the Committee may not necessarily be confined to those who apply formally.

For application forms and other particulars please apply to the Registrar, University of Burdwan, Rajbati, Burdwan with a self-addressed stamped (Re. 1/-) envelope (9" x 4").

Last date for submission of application with the requisite fee of Rs. 5/- is **June 10, 1987**.

P. Banerjee
REGISTRAR

EMBASSY OF THE REPUBLIC OF IRAQ

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"VACANCIES IN UNIVERSITIES OF REPUBLIC OF IRAQ" Specializations with terms and conditions are given below

The interested and qualified candidates are requested to send two copies of their up-to-date bio-data as soon as possible latest by **June 1987**. at the Embassy of the Republic of Iraq, Cultural Office, 169-171 Jor Bagh, New Delhi-110003. ALSO they are advised to register themselves with the Ministry of Personnel and Training, Foreign Assignment Section, North Block, New Delhi-110001, if already not done."

Note: Requirement for all posts is Ph.D. or Equivalent

Experience for all the posts is at least **Five Years** after Ph.D.

Specialization

(a) **Mathematics**
- ,, (Operations)
- ,, (Algebra)
- ,, (General)

Maths:
- ,, (Differential Geometry)
- ,, (Applied Functional Analysis)
- ,, (Differential Equations)
- ,, (Statistics)

Applied Maths
- —Statistics (Operations Research)
- —Statistics (Computer)
- —Mathematical Modelling (Operational Research)
- —Maths Engineering (Finite Element Method)

(b) **Physics**
- ,, (Theoretical)
- ,, (Electronics)
- ,, (Solid State)
- ,, (Nuclear)
- ,, (Solar Energy)
- ,, (Mathematics)
- ,, (Laser)
- ,, (Optical Fibre Communication)
- ,, (Non-Lineer Optics)
- ,, (Metrologic Applications)
- ,, (Theory of Elasticity)

(c) **Architecture**
- ,, (Construction)
- ,, (Computer Aided Design For Arch).
- ,, (Arch. Environment and Climate)
- ,, (Residential Buildings)
- ,, (Landscape Design)
- ,, (Interior Design)
- ,, (Industrial Buildings)
- ,, (Theory and History of Achitecture)
- ,, (System Building and Construction Details)

(d) **Economics**
- —Financial Accounting
- —Cost Accounting
- —Economics (Mathematical Economics)
- —Economics (Economic Planning)
- —Accountancy (Managerial Accounting or Cost Accounting)
- —Accountany (Financial Accounting or Auditing)
- —Project Management (Engineering Management)

(e) **Civil Engg.**
- ,, (Soil Mechanics)
- ,, (Barriers)
- ,, (Construction)
- ,, (Hydraulic Structures)
- ,, (Construction Management)
- ,, (Water Supply Sewerage — Building)
- ,, (Design of Irrigation—Systems)

(f) **Elec. Engg.**
- ,, (Instrumentation)
- ,, (Electronics)
- ,, (Machines)
- ,, (Communications)
- ,, (Computer and Control)
- ,, (Cyphering and Signal Processing)
- ,, (Automatic Control)
- ,, (Microwaves)
- ,, (Power)
- ,, (Intercircuit Manufacturing)
- ,, (Dynamics of Machines)
- ,, (Adative Control)
- ,, (Large Scale System)
- ,, (Robotics)
- ,, (Computer Control)
- ,, (Software Engg.)
- ,, (Artificial Intelligence)
- ,, (Computer Networking)
- ,, (Fault Tolerant Comupting)
- ,, (System Software)
- ,, (System of Electrical Power)
- ,, (Renewable Energy Sources)

(g) **Mech. Engg.**
- ,, (Machine Design)
- ,, (Machine Theory)
- ,, (Thermo Dynamics)
- ,, (Mechanics of Materials)
- ,, (Mechanical Drawing)
- ,, (Fluid and Thermal Mechanics)
- ,, (Applied Mechanics)
- ,, (Optimum Design)

(h) **Electronics Engg.**
- ,, (Comupter Science Tech.)
- ,, (Computerized Management Information Systems)
- ,, (Computer Aided Design)
- ,, (Electronic Control)
- ,, (Digital Communication)
- ,, (Signal Processing)
- ,, (Digital Electronics)
- ,, (Measurement and Instrumentation)
- ,, (System of Communication)
- ,, (Engineering Management)

(i) **Medical**
- —Anatomy
- —Community Medicine
- —Obstetrics and Gynae.
- —Pediatrics
- —Periodontology
- —Pathology
- —Artificial Kidneys

—Physiology
—Anesthetist
—Clinical Pathology
—Gynaec. and Obstet. Nursing (Midwifery)
—Medical Surgical Nursing Rehabilitation
—Conservative Dentistry Operative Dentistry
—Ende-Dontic
—Crown and Bridge
—Crown and Bridge
—Pedo-Dontics
—Maxillo Facial Surgery
—Oral Pathology
—Dental X-ray
—Oral Medicine
—Oral Histology
—Fixed and Removable Prosthesis
—Maxillo Facial Mosthesis
—Prosthodontics—Partial and Complete Dentures

(j) **Miscellaneous**

—Plant Toxonomy
—Forest Management
—Veterinary Medicine
—Veterinary Gynaecology
—English Literature
—Linguistics

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2. Full Professorship allowance is ID 20/- per month.

3. Accommodation allowance is ID 60/- per month for single and ID 150/- per month, if accompanied by family.

4. Air tickets would be provided for self, wife and two children below the age of 18 years, at the time of joining and on the expiry of the assignment.

5. Full protection is ensured as per the Iraqi laws for self, and the members of the family.

6. Initially the period of contract would be for one year and is likely to be extended on mutual agreement.

7. The relevant institutions/universities undertake to pay the medical fees of the foreigners along with their members of the family in public hospitals.

8. Annual leave is 45 days, in general.

9. No Income Tax is payable on the salary.

10. REMITTANCE ALLOWED IS 40%.

Note: 1 Iraqi Dinar (ID) = US $ 3.2

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ROORKEE

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HARYANA AGRICULTURAL UNIVERSITY

Advertisement No. 2/87

Applications are invited for following posts on the prescribed form obtainable from Assistant Registrar (Faculty), HAU Hisar by sending self addressed unstamped envelope size 23 x 10 cm. alongwith Indian Postal Order of Rs. 2/- in the name of Assistant Registrar (General). Candidates already in service must apply through proper channel. Applications complete in all respects accompanied by a fee of Rs. 20/- for posts at Sr. No. 1 to 8 Rs. 15 for posts at Sr. No. 9 to 16 and Rs. 10/- for posts at Sr. No. 17 to 22 in the form of Indian Postal Order in the Assistant Registrar (General) payable at HAU Post Office, Hisar should reach the Registrar by 17.6.87 (30.6.87 for candidates residing abroad). Incomplete applications and those received late will not be considered. Benefit of Contributory Provident Fund and leave etc. admissible as per University Rules. The applicants must possess prescribed qualifications and experience on the last date for receipt of applications. However, those who have submitted their thesis (Master's Doctorate's level) by the last date of receipt of applications are also eligible to apply. The date of submission of thesis must be supported by a certificate duly signed by the concerned authority of the institution. They will be considered by the Selection Committee only if they produce the completion certificate of Master's/Doctorate degree at the time of interview. The envelope containing application must be superscribed as "APPLICATION FOR THE POST OF ____________"

1. **Professor of Physical Education :** (Two) (i) Second class BSH & PE/B.A. & DPE/ B.P.E. (ii) Second class Master's degree in Physical Education. (iii) Ph.D. in Physical Education. (iv) Ten years' experience of Research/Teaching/Extension out of which atleast five years should be as Associate Professor or of equivalent rank in Physical Education.

2. **Professor of Home Science Extension Education :** (One). Essential. (i) Second class B.Sc. (Home Science). (ii) Second class M.Sc. Extension Education (Agricultural Extension/Home Science Extension). (iii) Ph.D. Extension Education (Agri. Extension/Home Science Extension). (iv) Ten years experience in Teaching/Research/ Extension out of which at least 5 years should be as Associate Prof. or equivalent. Desirable: (i) Evidence of having conducted independent research and published its results in professional scientific journals. (ii) Capacity for organisation as Head of Section/Deptt. of a teaching or research Institute/Administrative experience.

3. **Store Purchase Officer :** (One) (i) Atleast second class degree in Engineering or Master's degree in Science/Physics/ Chemistry/Commerce/Economics/ Statistics/ Mathematics/M.B.A. with major as Stores/ Purchase Management or M.Sc. (Tech.) from a recognised University. (ii) Atleast five years experience of store purchase work in a responsible capacity including three years in a class II/gazetted officer rank in a Govt./Semi Govt. Department or a firm of repute. (iii) Age Preferably between 40-50 years.

4. **Architect :** (One) : Degree in Architecture from an Institute or University recognised by All India Board of Technical Studies for employment to superior services, with 5 years, experience after Bachelor Degree (B. Arch.) out of which a minimum of 3 years as Assistant Architect.

5. **Associate Professor (Family Resource Management) :** (One) (i) Second Class B.Sc. (Home Science). (ii) Second class at Master's level in Home Management/Family Resource Management. (iii) Ph.D. in Home Management/ Family Resource Management. (iv) Five years' experience of Teaching/Research/ Extension.

6. **Associate Professor (Clothing & Textiles) :** (One) : Essential: (i) Second Class B.Sc. (Home Science). (ii) Second Class M.Sc. in Clothing and Textiles. (iii) Ten years' experience in teaching/research/ extension in clothing and textiles or allied fields. Desirable: Ph.D. in Clothing and Textiles or allied fields.

Note: Preference will be given to candidates having Ph.D. qualifications.

7. **Associate Professor (Child Development) :** (One) : (i) Second Class B.Sc. (Home Science). (ii) Second Class M.Sc. in Child, Development. (iii) Ph.D. in Child Development. (iv) Five years' experience in teaching/research/extension in Child Development.

8. **Scientist (Agricultural Engineering):** (One) : Essential : (i) Second Class graduate in Agril. Engg./Civil Engg. (ii) Second class Master's degree in Agril. Engg. with specialization in Soil and Water Management. (iii) Five years experience in design and Management of farm irrigation and drainage system. Desirable: Ph.D. in Agril. Engg. with specialization/experience in ground water studies including ground water modelling.

9. **Programmer :** (One) : (i) M.A./M.Sc. in Maths/Statistics with one year diploma in computer sciences or B.Sc. in Maths. /Statistics with 3 years diploma in Computer Science (ii) Atleast two years experience in Computer Programming.

10. **Assistant Librarian :** (One) : (i) Second Class B.A./B.Sc./B. Com. degree with first or second class M. Lib. Sci. OR Second Class M.A./M.Sc./M. Com. degree with first or second class degree in Library Science. (iii) Three years' experience in responsible capacity in an academic or research Library or documentation centre.

11. **Assistant Professor (Dancing) :** (One) : Essential : (i) Atleast 2nd class at Bachelor's level in Dancing (Classical/ Folk): (ii) Second class Master's degree or equivalent followed by Ph.D. in Dancing (Classical/Folk). Desirable: An alrounder in different Folk Dances of North-Western India.

12. **Assistant Mycologist** (One) : Essential: (i) Atleast second class B.V.Sc. & A.H. (ii) Second class Master's degree or equivalent followed by Ph.D. in the discipline of Vety. Microbiology/Vety. Bacteriology/Vety. Mycology.

Note: (For posts at Sr. No. 11 & 12) : Where candidates with Ph.D. are not available M.Sc./M.V. Sc. first class OR with OGPA 3.2/4.00 may be appointed subject to the condition that they will have to acquire a Ph.D. degree subsequently by taking leave of the kind due failing which they will not be allowed to cross the stage of Rs. 1300/- in the scale of Rs. 700-1600.

13. **Vice-Principal Campus School:** (One): (i) Master's degree or Hons. degree of a Foreign University recognised as equivalent to the Master's degree of an Indian University by the UPSC or Hons. degree of such Indian Universities as may be recognised equivalent to the Master's degree by the UPSC. (ii) A teaching degree or a diploma in Education or its equivalent. (iii) Atleast 8 years' experience including 5 year's Educational Administrative experience and three years' teaching experience in a recognised high or higher secondary school, preferably a public or Sainik School.

14. **School Lecturer Mathematics** (One): Essential : (i) Master's degree in the subject with degree or a recognised diploma in Education. (ii) B.Sc. with Physics. (iii) Experience of teaching Mathematics to Intermediate or higher classes for three years. Desirable: (i) Teaching experience in CBSE affiliated school. (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

15. **School Lecturer Physics :** (One): Essential: (i) Master's degree in the subject. (ii) Degree or recognised diploma in Education. (iii) Three years teaching experience to Senior Secondary/Intermediate classes. Desirable: (i) Teaching experience in CBSE affiliated school. (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

16. **School Lecturer Arts & Painting** (One) : Essential : (A) (i) Higher Secondary/Intermediate with minimum 5 years (full time) diploma in Fine Art/Painting/ Drawing & Painting from a recognised

Institute/University. OR (ii) Graduate with Fine Art/Art/Drawing/Painting as one of the subjects with minimum 4 years (full time) diploma from a recognised Institute/University. OR (iii) M.A. in Fine Art/Art/Drawing & Painting with a minimum 2 years (full time) diploma from a recognised Institute/University. (B) Three years teaching experience of Arts/Painting/commercial art to secondary or higher classes. Desirable: (i) Teaching experience in CBSE affiliated school. (ii) Active participation in Co-curricular activities and ability to organise such activities in the school.

17. **Mathematics Teacher** (One) : Essential: (i) B.Sc. with Maths and Physics. (ii) B.Ed. or a recognised degree in education. (iii) Three years teaching experience to secondary classes in English medium. Desitable : (i) Teaching experience in CBSE affiliated school. (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

18. **School Teacher Geography** (One): Essential : (i) A graduate with Geography in B.A. with a recognised degree or diploma in education. (ii) Two years teaching experience to lower classes in English medium. Desirable : (i) Active participation in co-curricular activities and ability to organise such activities in school. (ii) Teaching experience in CBSE affiliated school. Ability to teach through Hindi medium.

19. **Dance Teacher** (Woman only) : (One): Essential : (i) B.A. with Music or B. Music from a recognised University. (ii) Two years experience in a recognised Ballet Troupe as a performing artist. OR (iii) Two years experience in Dance work with children in a school. Desirable : (i) Teaching experience in CBSE affiliated school. (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

20. **Science Teacher** (One) : Essential: (i) B.Sc. with Mathematics and Physics. (ii) B.Ed. or a recognised degree in education. (iii) Three years teaching experience to secondary classes in English medium school. Desirable : (i) Teaching experience in CBSE affiliated school. (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

21. **Teacher (Instrumental Music)** (One) : Essential : (i) B.A. (Pass) or B.A. (Hons) degree in Music from a recognised University. (ii) Higher Secondary with any one of the following:

(a) Sangeet Visharad Examination of the Gandharwa Maaha Vidyalaya Mandal, Bombay.
(b) Sangeet Vid Examination of the Indian Kala Sangeet Vishwa Vidyalaya Khairagarh (M.P.).
(c) The Sangeet Prabhakar Examination of the Prayag Sangeet Samiti (Academy of Music), Allahabad.
(d) Sangeet Visharad Examination of Bhatkhande Sangeet Vidyapeeth, Lucknow. (Previously Morris College of Hindustani Music, Lucknow).
(e) Final Examination of the Madhva Sangeet Mahavidyalaya Lashkar, Gwalior.
(f) Highest Examination of Baroda State School of Music.
(g) The Final Examination of Shankar Gandhrva Vidyala, Gwalior.
(h) Sangeet Ratna Diploma awarded by the Director, Department of Education, Madhya Pradesh. **OR**

The new diploma/degree awarded by the concerned agencies/institutions in lieu thereof.

Desirable: (i) Teaching experience in CBSE affiliated school.
(ii) Active participation in co-curricular activities and ability to organise such activities in the school.

22. **Artist** (One) : (i) Matriculation or equivalent. (ii) Minimum 3 to 5 years diploma in fine Arts/Applied Arts from College of Arts. (iii) Thorough knowledge of clay work, Batik and leather work with aptitude for creative work with waste materials and development of folk arts. (iv) Two years experience in teaching Fine Art/Applied Art/Crafts. (One or more qualifications for exceptionally qualified/experienced persons is relaxable).

Note: (1) The experience will be counted after a candidate obtains his M.Sc. degree. Further a period of 3 years towards obtaining Ph.D. degree shall be excluded from the experience.

2. **For post at Sr. No. 2**

(a) The qualification regarding experience are relaxable at the discretion of the competent authority in the case of candidates belonging to the Scheduled Castes or Scheduled Tribes, if at any stage of selection, sufficient number of candidates from those communities possessing the requisite experience are not likely to be available.

(b) If suitable candidates from Scheduled Caste category are not available for the posts reserved for them these vacancies shall be filled up first from the Backward class candidates. Likewise if suitable candidates for vacancies meant for Backward classes are not available then these will be thrown open first to the scheduled castes candidates. However, in case suitable candidates belonging to either of the two categories in respect of the posts meant for both the categories (scheduled castes as well as Backward classes) are not available then such vacancies shall be filled up from the General category.

(c) The benefit of reservation will be admissible only to those S.Cc./B.Cs. and ESMs candidates who are domiciles of the Haryana State.

For Posts at Sr. No. 1-12

3. Special weightage will be given to extension experience possessed by the candidates for posts in disciplines amenable to extension.

4. Number of vacancies mentioned against each post can vary.

5. **For posts at Sr. No. 22**

The applicant should be 18 years old on the last date of receipt of applications. The upper age limit is 30 years relaxable upto 5 years in respect of Scheduled Castes and Backward Class candidates. For Ex-servicemen the upper age is 30 years plus continuous military service added by three years:

PAY SCALES

Sr. No. of Post	Pay Scale	Total emoluments at the intial of the pay scale (exclusive of House Rent and CCA)
1—2	Rs. 1500-60-1800-100-2000-125/2-2500.	2950/-
3.	Rs. 1500-60-1920-80-2000 (State Govt. pattern scale)	2587/-
4.	Rs. 1400-60-1700-EB-80-2100	2417/-
5—8	Rs. 1200-50-1300-60-1900	2605/-
9—12	Rs. 700-40-1100-50-1600	1766/-
13.	Rs. 800-30-890/940-40-1100-50-1600.	1452/-
14—16	Rs. 700-30-850/900-40-1100-EB-1250 (State Govt. pattern)	1295/-
17—22	Rs. 525-15-600-20-660/700-30-850-EB-890-1050	1061/-

REGISTRAR

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429 Telex 31 5578 AIU IN
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University News

MONDAY, JUNE 1, 1987

Rs. 1.50

ord Walter Perry, former Vice-Chancellor of Britain's Open University, receiving the citation from Prof. C. Narayana Reddy Vice-Chancellor, Andhra Pradesh Open University, at the University's first convocation

SARDAR PATEL UNIVERSITY

Vallabh Vidyanagar
Gujarat-388 120

Notification No. EST/1 (1987-1988)

Applications are invited in the prescribed forms available from the University Office on payment of Rs. 5/- in cash or by Indian Postal Order for the following posts so as to reach the undersigned on or before **15-6-1987**:

Sr. No.	*Name of the Post*	*Scale of Pay*
1.	Professor of Computer Science (For M.C.A. Course)	Rs. 1500-60-1800-100-2000-125/2-2500.
2.	**Reader each in :** (i) Chemistry (Specialisation in Co-ordination Chemistry, Polymer Chemistry and Theoretical Chemistry) (ii) Bio-Chemistry (iii) Chemistry (Industrial) (iv) Foods & Nutrition (Two Posts).	Rs. 1200-50-1300-60-1600-Assessment - 60-1900.
3.	**Lecturer each in :** (i) Physics (For Electronics Science) (Two posts) (ii) Computer Science (For M.C.A. course) (iii) Chemistry (Two posts) (Each in Industrial Polymer Chemistry and Analytical Chemistry) (vi) Home Science (Three posts) (One each in Child Development, Clothing and Textile and Home Management). (v) Gujarati (vi) Sanskrit	Rs. 700-40-1100-50-1300-Assessment-50-1600.
4.	**Temporary Posts for Examination Reform Unit:**	
	(i) Co-ordinator	Rs. 1100-50-1300-EB-50-1600.
	(ii) Statistician	Rs. 700-40-1020-EB-45-1200-50-1300-EB-50-1500.
5.	Deputy Accountant	Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200.
6.	Technician (Micro Analyst)	Rs. 700-40-1020-EB-45-1200-50-1300-EB-50-1500
7.	Technical Assistant (Each for Home Science & Bioscience Department)	Rs. 500-25-650-EB-25-750-EB-30-900.
8.	Technician 'D' for USIC (Glass Blowing)	Rs. 425-15-500-EB-15-560-20-700-EB-25-750.
9.	Machine Operator (Two Posts) (For G.H. Patel Computer Centre)	Rs. 425-15-500-EB-15-560-20-600-EB-20-700.
10.	Workshop Mechanic	Rs. 380-12-440-15-470-EB-15-560-EB-20-600.
11.	Punch Operator	Rs. 260-6-308-EB-6-326-8-350-EB-8-390-10-400.

Details of the prescribed qualifications will be supplied alongwith the application forms. All the posts except at Sr. No. 4 carry the benefits of Dearness Allowance, Provident Fund, Gratuity and Pension Scheme as per University rules. Posts at Sr. No. 4 carries the benefit of Dearness Allowance only.

Preference will be given to the qualified candidates belonging to Scheduled Castes, Scheduled Tribes, Socially and Educationally and/or Economically backward class. Candidates belonging to these castes must attach a certificate from appropriate authority.

R.C. Thakkar
REGISTRAR

ASSOCIATION OF INDIAN UNIVERSITIES

AIU House, 16 Kotla Marg
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UNIVERSITY NEWS

VOL. XXV **JUNE 1**
No. 22 **1987**
Price **Rs. 1.50**

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor:
SUTINDER SINGH

3 JUL 1987
C. F. T. R. I., MYSORE

International Yoga University

We welcome the recommendation of the World Yoga Conference that steps should be taken to establish a Yoga University at a suitable location near the capital of India. Thanks to the sustained efforts of Yoga practitioners and the bio-physical and psycho-dynamic researches made in the West, the Discipline of Yoga has come to occupy a respectable place in society and in the scheme of preventive and curative medicine.

However, there is a tendency to consider Yoga as yet one more system of physical culture. This is not so. Yoga is a full-fledged, holistic science. As enunciated by the Sage Patanjali, it postulates 8 sub-disciplines embracing the practice of Yama, Niyama, Aasana, Praanayaama, Pratyaahaara, Dhaarnaa, Dhyaana and Samaadhi, which is the state of ultimate union of the self with the supreme-self. According to one school, these are 8 graduated steps to Yoga (Union), while according to another, these are 8 limbs of Yoga and may be practised simultaneously, depending on the competence of the practitioner. The most popular sub-disciplines being commonly prescribed and practised are aasanas (physical postures) and praanaayaama (breath-control). Then there are the allied schools of Prekhshaa Dhyaana, Vipassanaa and Transcendental Meditation. Many more schools of Yoga abound and contend for attention. All this adds upto the necessity of a scientific and analytical study and research in the various systems to determine their relative efficacy in diverse situations.

Hence the need for the establishment of a specialized university, which shall not only conduct research into the claims of yogic therapy to cure physical and mental disorders, but shall also carry forward the investigations of modern exponents and practitioners of Yoga, such as Dayananda, Vivekananda, Aurobindo, Sivananda, Yogendra, Krishnamurti and others. The growing popularity of Yoga now has thrown up a vast demand for Yoga instructors; but as it happens the supply is far short of the demand, and consequently the ranks of instructors are being filled up by half-baked ill-trained, make-shift instructors, who are likely to do more damage than good. They consider Yoga to be yet another school of physical education and are seen to adopt the drill master's techniques, with whistle and all that, which is a negation of the Yogic culture and hence counter-productive. Yoga is essentially an integrated discipline based on the unity of body and mind through the control of breath. The ultimate aim is not the development of muscles alone, but also the strengthening of the internal organs as well as the nervous system and the psychic processes. Hence the importance of the Savaasanaa and the Shithilaasana and of regulating breath. The proposed Yoga University shall fill this need by producing trainers and shall be expected to run short-term refresher and orientation courses for this purpose.

Yogic education is basically value-laden education inasmuch as it seeks to inculcate primarily the practice of Yamas and Niyamas. Yamas are rules of social conduct; these are: Truth, Non-violence, celibacy, non-possession and non-theft. Niyamas are rules of personal conduct, namely, cleanliness, industriousness, contentment, self-study and self-surrender. Thus Yoga is nothing but man-making education in its broader perspective. It aims at proficiency in work, "Yogah Karmasu Kaushalam" as the sage said. Moreover it transcends all barriers of religion, creed or country.

In order, therefore, that the Yoga University may fulfil its social role, it would be desirable to model it on the pattern of the Agricultural Universities, giving due importance to teaching, research and extension.

—*G.B.K. Hooja*

TECHNICAL TRANSLATION

R. B. K. Varma*

Technical translation must be regarded as a regrettable necessity especially because every state in India has accepted, at least in principle, that Science teaching should be done only through the mother-tongue of the student. In this context more thought should be given to 'techincal translation'. If proper attention is not given to the aspect of specialised translation it would hamper the growth of science education and research which would in turn stunt the growth of our technological education. As far as India is concerned translation should be made at two levels—from major foreign languages other than English to English and from English to respective regional languages. As matters stand however, the flood of technical and scientific literature in all languages continues unabated, and the problem has been solved to date by producing a limited number of cover-to-cover translations from Russian into English and leaving all other articles and papers to the individual insterest of scientists who can request translation privately.

In this way the Copyright Act of 1956, which lays down that translation is legal only when done with the author's consent, is obeyed in the spirit; and there the matter might rest were it not that in the final analysis technical translation is an essential service to scientists and should be improved within the limits of the possible.

Staff translators can get help from their colleagues, and freelance translators and translation agencies manage with their given resources, but officially no questions are asked whether the services provided as a whole are good enough. Technical translators generally do not seem to appreciate that the literary aspect of their work should be subordinated to its technical aspect. An expert translator in his particular technical field knows only too well how complex the subject-matter usually is and thereby does not throw the onus of understanding entirely on the reader, but the technical or scientific worker has in far too many cases to be extremely indulgent in puzzling out possible meanings in what passes for a technical translation.

Provided a technical translator has had the necessary training and is sufficiently acquainted with the details in the two relevant languages, the translation itself should only be in plain and acceptable technical language which should be regarded as the professional standard to be aimed at in this kind of work. The alternative—that scientists should learn languages and do their own foreign reading—is interesting in theory and would naturally broaden their cultural outlook; but in practice the vast majority of scientific workers will always have to rely on the help they can get from technical translators. Another point is that translations in their nature are expensive. It would therefore be in the interest of everyone concerned to see that a professional level was reached and possibly taken for granted.

A step in this direction would be for some authorized and recognized body to produce a publication similar to TECHNICAL TRANSLATION, a fortnightly journal published by the U.S. Department of Commerce. The value of such an Indian journal would lie in the co-operative effort required to bring all the translators and translation agencies in India under one umbrella so that the service given to scientists and technologists would be no less prompt and comprehensive than that given to their colleagues in other countries. In India there are some organisations which are engaged in such works but it could not develop beyond a particular level. Translations not only have to be made; they also have to be made accessible.

The difficulties of educating technical translators, however, should not be underestimated. It takes years to learn science, and equally years to learn languages. The present tendency of reducing language techning as an unavoidable ritual should be done away with. Instead students should be encouraged to attain proficiency both in English and mother-tongue so that many of them can become efficient technical translators. It follows, therefore, that technical translators cannot change or be produced overnight. Similarly, it follows that if no academic courses of a suitable nature are provided, there will never be enough trained technical translators to do the work in the future.

"The Federation Internationale des Traducteurs" in Paris has drawn up a "Translator's Charter" which is intended to put all translators, technical and literary, on a professional basis internationally. "The Institute of Linguists" in London offers a diploma specially for technical translators in Britain. Educational institutions in India can emulate this. Even this may not be, taken by themselves, sufficient to satisfy the demand for a rapid and accurate communication of technical and scientific papers published in foreign languages including English.

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*Department of English, Madura College (Autonomous), Madurai-625 011.

The following suggestions, therefore, are put forward as a contribution to the study of a problem which perhaps deserves far more attention than it has so far received.

The objective should be two-fold: to provide courses for beginners and short refresher courses for practising translators. All this would take time, but only a limited number of people would be involved, otherwise there might be a flood of translators to cope with a possible static amount of work.

Introduction of a course in technical translation in graduate classes should be considered seriously. Science students should be given sufficient opportunity to learn the technique of specialised translation. Courses for beginners should be relatively easy to organize as the requirements would involve only basic languages and basic science or technology.

By adoping a scheme with a high-sounding title such as industrial scholarships, it might also be possible to transfer from the universities direct to industry a limited number of talented graduates who would rather combine science and languages than do either separately. Again, the idea of industrial scholarships would have to come preferably from large firms or by organizations such as the Chambers of Commerce.

With regard to refresher courses, translators need to keep up with the advanced terminology and developments in the scientific and technical fileds every bit as much as their practising opposite numbers, that is, their potential clients. Annual vacation could meet this requirement if the necessary backing from authoritative quarters were forthcoming. The subject matter for such refresher courses is more or less well known to every technical translator; techniques and jargon.

Beginners must naturally keep strictly to the original, but with experience a certain latitude becomes possible and desirable. For example, every language has its typical grammatical constructions. Normally, translating is done word for word with the minimum of rearrangement to give adequate readability. Perhaps more acceptable results could be achieved faster if translators regarded it as part of their task to translate also grammatical constructions. The substance of the original may come through even more clearly in this way.

Another technique which sounds scarcely relevant, but is extremely important from a practical point of view, is typing. The better a translator can type, the more time and energy he has for the actual work of translation. A quarter of an hour, or even longer, looking for the right word is most uneconomical working, yet it is so easy for one translator to phone another who knows the answer and might reciprocate on some future occasion.

The image of technical translation is small, pettifogging and 'uninteresting'. All this it certainly is on occasions, especially when output alone is important for economic reasons.

In the wider context, however, science and technology have many important small links in the chain from the original conception to the final achievement, whatever it happens to be, and technical translation is one such link in the information and communications field. Perhaps this link is a more vital one than is generally appreciated because, in the past, too many amateurs have had to do it or it would, by and large, not have been done at all. □

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Children's and Young Adults' Literature

Arvind P. Dave*

In the year 1984-85 the Board of English Studies of the Saurashtra University passed the following resolution:

> 'This meeting of the Board of Studies in English resolves to appoint a sub-committee ... ... to examine critically the desirability and feasibility of introducing 'The World Children's and Young Adults' Literature in English' on the same lines as in most of the Western Universities, as an optional subject to English Special and in the case of the sub-committee arriving at a favourable conclusion about this basic term of reference, to frame appropriate syllabi for this new subject, which may be introduced in Saurashtra University almost for the first time in the whole of India at FY SY and TY BA levels.'

The puritanical and traditional forces and the higher ups in the University never even gave a chance of a second thought to the introduction of this important section of literature, nor did they know its importance and need when Children's and Young Adults' literature have become the most important part of the learning and teaching at Primary, Secondary and at College Levels because children are very imaginative and their imagination need firing through their level of imaginative process. This process has been stopped since the day the primary, secondary and college teachers became professional, unionists and self-centered.

It is seen from all the education reports before and after independence that major stress has been given to high school and higher education but no stress has been given to children's and young adults' literature and that is why regional language textbooks have very poor content material and illustrations whereas English medium primary, secondary and higher secondary and university English textooks have more of reading material!

In her essay 'Why Children's Literature Should be Taken Seriously' Rebecca Lukens has stated in CHILDREN'S LITERATURE ASSOCIATION QUARTERLY issue of Fall 1986, Vol 11, No. 3, 'Teachers who love good books instil in their pupils a love of good books. Our children and grand children need teacher who have had college courses in Children's Literature Yes, but a course taught by someone committed t literature. These instructors should be as committed to teaching children's literature as they are to teaching Pope, Milton, Melville, or Faulkner. Perhaps even more committed, for the instructor of children's lite rature meets students who will influence the lives o countless children, your own among them. This ins tructor will help them to understand their fellow human beings and to be able to impart human value to society, which is very sharply dwindling from the bottom to the top of our education itself and from our societies.

Even in the New Education Policy, I do feel, we have not stressed on healthy production of children's and young adults' literature even though the Ministry of Human Resource Development had organised a workshop on the National Book Development Policy (Chapter IV, Pages 14-24). It seems, the report comprises cursory views of the persons who have least knowledge, value and worth of children's and young adults literature

Actually our present elders' minds are over-shadowed by the impatience in hurrying up of improving the educational standards without looking at the foundation of the education from the very KG level. And this has deteriorated our educational standards and washed off the moral values among the masses. But here we need to pause and judge inwardly that have we ever looked through the textbooks? Have we cared for the right sort of production of children's and young adults' reading material and its large scale distribution to the village units?

The total neglect of this literature has given a boost to the poor production of reading material for primary, secondary and higher secondary schools' libraries— which are practically non-existent in rural and mofussil areas of our country! It is because the material is not produced by qualified persons and practically CRITICAL side of these books and literature is also totally nil! It is a principle of any literature that without good criticism, we have weaker and poor writing and this has resulted in poor reading at the very primary stage. I quote Henry Seidel Canby from his 'Definitions: A Second Series' that 'Unless there is somewhere an intelligent critical attitude against which a writer can

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**S.S.P. Jain Arts & Commerce College, Dhrangadhra (Gujarat).*

measure himself. . . . one of the chief requirements of good literature is wanting. . . the author degenerates' This is because we have never valued and measured out of our short sightedness, children's literature's real worth at the primary, secondary and higher secondary schools. Rebecca Lukens says 'Criticism is our responsibility. Children's literature is part of the whole body of literature that we are duty bound to examine—and in our present situation of Education in particular.

There is an urgent need for setting up an organisation on the lines of **International Institute for Children's literature and Reading Research, Vienna; International Board on Books for the Young People; International Research Society for Children's Literature.** We need compilation and preservation of old manuscripts written by the English and the Indian writers since we began to write for children in English and thereafter in Regional Languages for research purposes and creating new reading material for children and young adults. In Gujarat, we need extended research on late Gujubhai Badheka a creative KG and Primary Teacher, who created textbooks and other related reading material for children and the teachers. Unfortunately none of us in India has realised the real need of introduction of Children's and Young Adults' literature at PTCs, B.Ed. Training Colleges and at the Universities at FY, SY and TY Level.

Rebecca Lukens says 'The Humanities and Social Sciences are rapidly discovering childhood and its literature. Historians, sociologists, philosophers and art historians have noticed and traced in children's literature the attitudes of historical periods toward childhood and toward adult values. Psychologists may vary in their approaches, but they too are interested. But while academics from these other disciplines are aware of children's literature, English Departments seem to leave children to their own devices.

What Lukens says for American conditions is more true for us as we have not even set a foot on the untreaded grounds by the universities and education departments at the centre and at the state level. She says: 'If students are taught that a good story depends for its holding power upon solid characterization, suspenseful conflict with action and inevitability, on significant but undidactic (*I disagree here on the undidactic part of children's literature in our context*) themes, on lively and imaginative style that makes unexpected comparisons and stretches a reader's sensory awareness—as long as students are taught by those who value literary excellence in any piece of writing, our library systems for both the public and the schools will be stocked with good books chosen by people who know and care. . . . . We must not leave literature, reading for pleasure and for understanding of our fellow human beings in the hands of the literacy specialists only but in those of literature devotees, wherever they may be found in various departments of the college or university'.

We need a centralised and zonal forums to establish research centres and to test and judge, the material produced for children and young adults and to evolve courses for PTC, B.Ed., FY, SY, TY to inspire those who are fond of books and promote love for books according to their aptitudes for the real growth of man residing in the mind of the children.

T.S. Eliot mentions three significant reasons for reading: acquiring of wisdom, appreciation of art, and pleasure of entertainment. Such reasons for reading can be fostered. We could rightly influence the future for a truly educated and humane world. Will our academics think on these lines to establish research institutes and introduce this literature in education in the right earnest? □

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Application forms under the Scheme at Serial No. 1 and 2 above are also available with the State Education Department, Directors of Education, Director of Public Instructions, State Sports Councils and National Sports Federations concerned and for Scheme under Serial No. 3 above with Registrars of Indian Universities.

LAST DATE FOR RECEIPT OF APPLICATIONS OF THE PRESCRIBED FORM THROUGH PROPER CHANNEL IS 31st JULY, 1987.

THE OPEN UNIVERSITY

Hon'ble Shri R.S. Pathak, Chief Justice of India, delivered the Convocation Address at the 1st Annual Convocation of the Andhra Pradesh Open University, Hyderabad. The jurist in Shri Pathak observed that the Open University "discharges a high constitutional purpose. The access to education so provided acts as a powerful influence in the promotion of an egalitarian society, which was the ambition of the founding fathers of our great Republic and is the corner stone of our constitutional polity". He suggested that "by appropriate co-ordination, a grid of Open Universities can be evolved, enabling the flow of educational courses to the student community with an economy which could enable the diversion of finance to an enrichment of educational programmes all over the network. A fine balance can be achieved on all India basis with statesmanship and vision, enduring to the benefit of the millions of our country." Excerpts:

The Open University is one of the remarkable concepts of our age. It is the supreme example of the triumph of an idea in the service of the masses. It is revolutionary and daring, even for this era of experimentation and enterprise. It is of great consequence for our people, and of much moment to our national life, In its objective, its design and structure, it ranks with one of the far-reaching visions of human leadership. In a point in history, when the world is poised on the edge of great changes, the birth of this concept has not come too soon. Formal education, as we know it, brings within the fold of higher learning, a small fraction only of the population of a country. Its nature, the principles on which it is founded and the direction is has taken through successive stages of evolution have confined its benefits to the comparative few. The philosophy of 'Distance Education" has been evolved to supply the void, and it is expressed most appropriately in the Open University.

An Open University provides the opportunity of higher education to the great many, who for one reason or another either could not, or have not, had access to it. The institution is of especial significance to a country such as India, indeed to all developing countries, where orthodox custom or traditional prejudice or economic disadvantage or vocational preoccupation have combined to deprive a large segment of the population of the higher reaches of knowledge. There is the housewife who too early became condemned to the chores of domestic life, the student who was unable to secure admission to a College or University because he lacked finance or because he was not able to measure up to our present day fiercely competitive admission standards or because domestic economic pressures compelled him to abandon his aspiration for higher education. There are still others who wish to update their knowledge in specialised areas. For all of them the Open University affords the answer. Viewed in that perspective the institution discharges a high constitutional purpose. The access to education so provided acts as a powerful influence in the promotion of an egalitarian society, which was the ambition of the founding fathers of our great Republic and is the corner stone of our constitutional polity. The social scientist and political economist will discover in this educational system the capacity to bring about social integration and a significant upsurge in the level of national productivity. Education is a necessary pre-requisite in raising the quality of productivity, and as educational opportunities spread to the great masses so will expand the demographic areas of creative

Prof. G. Ram Reddy receiving the Degree of Doctor of Letters (Honoris Causa) from Smt. Kumudben Joshi potential. As the twenty first century beckons us, the emphasis for broadening the qualitative base of our people becomes more urgent. A new society is in the making, and I am convinced that the contribution made by Open Universities in shaping it will be profoundly important.

To estimate the significance of this educational system, a description of what the Andhra Pradesh Open Universisy is doing has been given. In the attempt to provide education for the masses, the University attempts to reach them through a co-ordinated mix of traditional forms with the modern achievements of technological development. In adopting a multimedia approach, it has taken advantage of the Print Medium, Radio Lessons, Audio Cassette Lessons, Video Lessons together with Counselling, Contact Programmes and Summer Schools. A widely distributed network of 56 Study Centres covers the major cities and all the districts of the State and, what is especially commendable, it extends to the inmates of the Central Prison in Hyderabad lending assistance to reformatory programmes through education. There is a comprehensive organisation of educational instruction in which use is made of existing academic faculties and staff besides educational expertise for the preparation of course material. A system of continuing assignments and constant evaluation guarantees an intimate involvement in the progress of the student. The graded courses enjoy wide flexibility, and care is taken to ensure a content of social relevance as well as vocational usefulness. The University has progressed into the sphere of Post Graduate specialised vocational education, and finds it possible now to extend Post Graduate education in Arts, Science and Commerce as well as advance to the undertaking of Research Programmes for M. Phil. and Ph.D. degrees. This brief survey demonstrates the capabilities of an Open University.

Eminent educationists the world over have lent their support to this concept of "Distance Education". In the continents of Australia and North America, it has been employed widely where large sparsely populated areas do not permit the founding of colleges and universities in the vicinity of settlements. Conversely in India, this new system is all the more welcome because of the enormous population, a population still growing much too rapidly, for existing Universities of formal education to cope with. Professor G. Ram Reddy, Vice-Chancellor of the Indira Gandhi National Open University, points out in his Endowment Lecture at Sri Venkateswara University, that the proportion of tertiary level student population in the age group of 17 to 23 years is only 4.8% in India contrasted with 25% in the Philippines, 18% in South Korea and in the U.S.S.R., 30% in Japan and 55% in the U.S.A. He estimates that the likely enrolment in higher education in the year 2000 A.D. can be expected to double to 6.5 million students. In this illuminating address, he has also referred to the role of "Distance Education" in providing equal access to higher education between males and females in India, between rural and urban areas, between the upper

Andhra Pradesh Open University Hyderabad

Highlights

1. **The University has a student enrolment of 40,000 with a network of 57 study centres spread over the entire state.**
2. **The distinguishing feature of the undergraduate programme is introduction of a foundation course—the like of which is not found elsewhere.**
3. **In addition to the undergraduate courses, the University offers diploma courses with a vocational bias and a research programme leading to M. Phil degree in Development Studies with inter-disciplinary thrust.**
4. **The University plans to start postgraduate programmes in Political Science, Public Administration, English, Telugu, Mathematics, Commerce and Business Administration.**
5. **A course in Journalism with a vernacular bias is to be introduced shortly.**
6. **The University plans to design, in collaboration with the Indira Gandhi National Open University, a course in Kuchipudi Dance in terms of the exposition of individual artists.**
7. **The University hopes to launch shortly a special programme of teacher-training with the support of British Council and Overseas Development Administration.**

castes and the scheduled castes and scheduled tribes, and between different regions of the country.

The concept of Open Universities has caught the imagination of progressive educationists in India as the most highly developed system of "Distance Education" evolved so far. It is also of significance in our country as being one of the best instances of a high efficiency—low cost system in a public benefit programme.

During the four years of its existence the Andhra Pradesh Open University has established its high reputation and the student strength in 1986-87 reached the figure of 47,872. That the experiment has been successful and the concept welcomed stands amply demonstrated.

Impressed by the importance of this new philosophy of education, Parliament at the Centre has enacted law setting up the Indira Gandhi National Open University at New Delhi. This will function not only as an Open University, but it will also maintain and co-ordinate "Distance Education" in the country. This is in recognition of the need in a vast country such as India to co-ordinate the educational effort of different Open Universities which can be expected to be set up in the States and to prevent avoidable duplication in the mapping out of courses. By appropriate co-ordination, a grid of Open Universities can be evolved, enabling the flow of educational courses to the student community with an economy which could enable the diversion of finance to an enrichment of educational programmes all over the network. A fine balance can be achieved on an all India basis with statesmanship and vision, enduring to the benefit of the millions of our country. The Open University concept will thus almost fully supplement the existing formal educational structure of today. Its existence will be an enduring tribute to those eminent educationists, whether in India or abroad, who initially formulated and evolved the concept, made it workable and were instrumental in bringing its blessings to our country. □

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REGISTRAR

MIS in Libraries and Documentation Centres

The National Social Science Documentation Centre (NASSDOC) in the Indian Council for Social Science Research (ICSSR) added yet another dimension to its activities by deciding to organise continuing education programmes for library and information scientists in the country. The first such programme, 'MIS in Library and Documentation Centres' was organised from 11 to 18 May, 1987. Prof. G. Parthasarathy, Chairman, ICSSR, while inaugurating the programme appreciated the initiative taken by the NASSDOC in organising continuing programmes for professionals associated with documentation and research information services in the field of social sciences. It is of utmost importance that librarians and information scientists should evolve an inter-disciplinary approach which form the basis for designing the structure of information needs and selection of an appropriate technology for improving the operational efficiency of the professional staff in the large context of their role of providing services to the social science community, observed Prof. Parthasarthy. He hoped that the training programme will be useful to the participants and provide a better understanding of the various aspects of the application of management information system in the organisation of libraries and documentation centres.

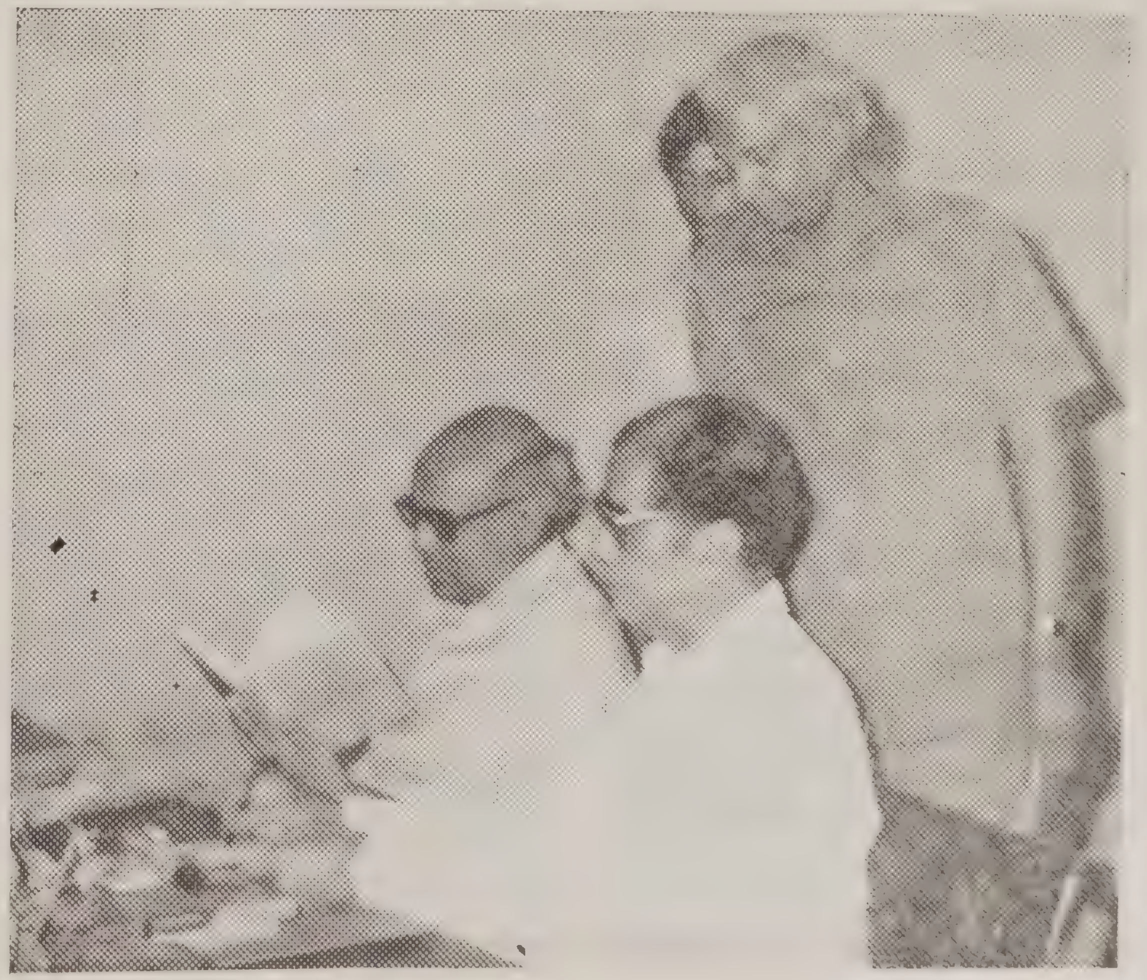
Prof. P. B. Mangla, Dean, Faculty of Arts and Head of the Department of Library and Information Science, University of Delhi, presented the Keynote Address. In his address, Prof. Mangla stressed the need for the application of MIS techniques in libraries. He said that with the explosion in information and increase in the number as well as different types of documents coupled with large increase in the number of users and staff, libraries the world over have grown in size and have become quite complex in their organisation. The administrative environment in these libraries, therefore, calls for accurate, timely, insightful and effective decisions that facilitate the ability of the organisation to accomplish predetermined goals and objectives. In view of these factors, the development and use of management information assumes increased importance. He observed that the administration of libraries, documentation centres and information centres require:

(i) a conceptual approach by which to identify, collect and present information for proper decision making; and

(ii) a practical approach by which procedures, techniques and equipment are coordinated to provide information necessary for improving the effectiveness and efficiency of various services and operations.

He said that two important points which deserve our special attention are (i) the new proper management of libraries, and (ii) services to users at a time when they need them and in a form that would best suit the users' needs. There is generally a lack of management information and the appreciation of the information needs of the users. It is, therefore, high time that our libraries modernise their decision making systems.

Amongst the areas covered during the week-long programme were Library as a System; Socio-economic and Collaborative Processes in Organisations; MIS : Need and Usefulness in Libraries; Impact of Information Technology on MIS; Use of Computers in MIS with reference to Libraries; Computer Appraisal: Configuration, Generation, Micro-computer, PC and Selection; System Analysis and Design; Software Development and Selection; and On-line Information Systems. The faculty was drawn from the National Institute of Information Technology (NIIT), Housing and Urban Development Corporation (HUDCO), Defence Scientific Information and Documentation Centre (DESIDOC), Indian Institute of Management, Ahmedabad and the University of Delhi.



From L to R : Prof. P.B. Mangla, Dean, Faculty of Arts and Head, Deptt. of Library & Information Science, University of Delhi and Prof. G. Parthasarathy, Chairman, ICSSR are seen at the inaugural function.

Institute for Yoga and Consciousness

Andhra University, Waltair, has set up an Institute for Yoga and Consciousness to promote objective studies on mind-matter interaction. We are happy to carry a brief report on this pioneering Institute for the benefit of our readers.

Scope

The Institute for Yoga and Consciousness is a centre for fundamental research on mind-matter interaction. Interdisciplinary in approach and international in scope, the Institute attempts to bring together the high technology of the West and the wisdom of the East for a fuller understanding of man's nature — an understanding that reflects at once the experimental objectivity of science and the experiential richness of traditional practices. Researching on the frontiers of psychology, physics and brain sciences, the Institute seeks to advance and integrate the knowledge concerning man

In the evolutionary pyramid, man stands at the apex. His most distinguishing feature is consciousness. Our scientific understanding of man's consciousness relative to our knowledge of his body is indeed insignificant. Therefore, it is widely believed that the future breakthroughs in science are likely to be in the realm of the mind and consciousness; and the Institute for Yoga and Consciousness hopes to be in the forefront of such future science.

Why Yoga?

Yoga, practised as a technique for controlling mental states, is potentially a powerful method for understanding consciousness. Practitioners of Yoga have documented a variety of feats that are not ordinarily regarded as feasible. They have demonstrated unusual degrees of voluntary control of internal states and autonomic functions. It is a common belief that numerous psychic phenomena that seem to defy normal constraints of mind-matter interaction manifest themselves as yogins progress in their pursuit of transcendence. What is remarkable is that such claims are not limited to Hindu, Jaina or Buddhistic traditions. They also abound in Sufism, Christian mysticism and other religions. Further there are striking similarities between these distinctive traditions on the question of mind-matter interactions that appear anomalous from the perspective of prevailing assumptions in science. It, therefore, stands to reason to suppose that yoga, which is perhaps better systematized and more widely practised than any other comparable psychic development procedure, may hold the key to a proper understanding of consciousness and the variety of its manifestations in our experience.

Salient Features

Much of research on yoga and most of the institutions devoted to its study almost exclusively deal with physical and physiological aspects of yoga, for example, the practice of **asanas** for building a healthy body and for preventing and curing disease. These are important without doubt. But what is even more important is the study of the higher aspects of yoga that have to do with psychic functioning. Regrettably such studies have not been done in any systematic and scientific fashion. The Institute for Yoga and Consciousness is dedicated to serve precisely this function.

The Institute is established as an integral part of Andhra University. This not only ensures the permanence of the Institute as a research centre but can also be expected to set up very high standards of excellence in research and scholarship. The importance of the latter can be hardly overemphasized when one is pioneering in frontier areas.

As an interdisciplinary centre, the Institute endeavours to assemble in one place brain and behavioural scientists, physicists and philosophers, yogins and others who claim unusual control of their mental states. Such an assembly makes it possible to discuss, debate and discover new paths that hopefully lead us to that mountain top from where we could map a panoramic picture of the puzzling terrain of the phenomena that have so far defied scientific surveying.

The First Phase

During the first phase an outlay of about a crore of rupees is envisaged. Of this amount, five million are for the physical facilities, including library and laboratories. The other fifty lakhs are required for the functioning of the Institute during the first five years. While it is expected that half of the funds required would be provided by the governmental sources, attempts are underway to match these funds from private philanthropists. The response has been quite encouraging so far. The management of Sri Shanti Ashram has offered to donate one of the most exquisite sites located on the Kailasa Hill facing the Bay of Bengal for the construction of permanent buildings for the Institute, and the University has accepted the offer.

The Staff and Organisation

The Institute staff not only carry out experimental studies at its headquarters with select subjects, but they also undertake field investigations with portable equipment. In addition to collecting empirical and laboratory data, some of the staff will work on theoretical issues, including the study and interpretation of classical texts having bearing on the Institute's areas of interest.

The Institute hopes to maintain continuous liaison with all those interested in its work and act as a clearing house for dissemination of the latest information. □

Summer Institute in Quantum Mechanics

The Centre for Development of Physics Education (CDPE) of the University of Rajasthan proposes to organise a summer institute (training programme) in Quantum Mechanics, from June 7 to June 27, 1987. Sponsored by the UGC, the programme will consist of lecture session on various topics of Quantum Mechanics, followed by problem solving sessions. The participants will be imparted instructions in the use of micro computers supported by solving Quantum Mechanics problems numerically on micro computer. The computer training and programming would be conducted by the University Service and Instrumentation Centre in collaboration with CDPE.

Over fifty college teachers from all over the country are expected to participate in the programme.

Patna Varsity Introduces Environmental Biology

The Patna University has decided to introduce the teaching of Environmental Biology and Physiology and Biochemistry as special papers in M.Sc. (Zoology) course from the next academic session. This decision is reported to have been taken by the academic council of the university at its meeting held recently.

Special Assistance for HPU Education Deptt.

The University Grants Commission (UGC) is reported to have recognised the Department of Education of the Himachal Pradesh University (HPU) for the grant of special assistance. The Registrar of the University, Mr. A.R. Chauhan, said that the assistance would be available for a period of five years and would include recurring expenses on account of salary of the teaching and non-teaching staff of the department. In addition, assistance would also be provided for research fellowships and scholarships at the national level.

News from Agril. Varsities

Increased Outlay for Buffaloes' Research

The Government of India has earmarked Rs. 8 crores for strengthening research work on buffaloes in the country during the 7th Plan, disclosed Dr. R.M. Acharya, Deputy Director General (Animal Sciences), Indian Council of Agricultural Research while inaugurating the 8th Workshop on All India Coordinated Research Project on Buffaloes organised by the Central Institute of Research on Buffaloes (CIRB) and Haryana Agricultural University (HAU) recently at Hisar. Dr. Acharya said that Rs. 6 crores have been earmarked for the CIRB, Hisar alone and Rs. 2 crores for the All India Coordinated Research project on Buffaloes. He further disclosed that a computer centre with an investment of Rs. 10 lacs would be established at the Hisar centre.

While giving the genesis of the All India Coordinated Research Project, Dr. Acharya said that the main object was to improve the production potentiality of buffaloes through assessment of genetic parameters for economic characters by adopting suitable system of breeding and management.

About 70 scientists and researchers from all over the country participated in the two-day workshop.

National Productivity Award for HAU

The Department of Microbiology of the Haryana Agricultural University has been given the national productivity award in the agriculture (Biofertilizer) sector by the National Productivity Council. The award was given for the quantitative and qualitative excellence in the production of Rhizobium culture.

The Department of Microbiology of the Haryana Agricultural University (HAU) is the 2nd largest producer of Rhizobium culture in the country. It has been producing on an average over one lac culture packets every year since 1974.

Rhizobium is a bacterium that can fix atmospheric nitrogen for the use of plants. It forms nodules on the roots of legumes, which are the sites of nitrogen fixation. The inoculation of legumes seeds with Rhizobium inoculants has been found to be very useful. This culture is supplied by Haryana Agricultural University to various Govt. and private agencies which include Haryana Seed Development Corporation, State Department of Agriculture, Central State Farm, Hisar, Indo-Australian Cattle Breeding Farm, Hisar, Central State Farms, Jatser, M.P. Agro Industries Corporation, Bhopal, etc. Culture packets are sold to individual farmers also.

Mr. L.D. Kataria, Vice-Chancellor of the University, said that the Department of Microbiology has been working for the development of various strains of Rhizobium for different legumes for the past 12 years and we have strains effective in nodulation and efficient in nitrogen fixation for all the legumes cultivated in Haryana.

New Maize Varieties

The State Variety Approval Committee which met at the Punjab Agricultural University under the chairmanship of Mr Sukhdev Singh, Director of Agriculture, Punjab has approved two new varieties of maize, namely, 'Sartaj' and 'Prabhat' for general cultivation in the State.

'Sartaj' is a hybrid maize variety which is high-yielding with attractive yellow-orange grains. It has a very good level of resistance to prevalent diseases. Because of short plant height, lower ear placement, good root system and strong stem, it has remarkable resistance of lodging. It matures in about 90 days and yields about 20.5 quintals of grains per acre.

'Prabhat' is a high-yielding and disease resistant variety with average plant and ear height. It is resistant to root lodging and stem breaking. It matures in 95 days and yields 18.5 quintals of grains per acre.

New Kabli Gram Variety

The Geneticists of Haryana Agricultural University (HAU) have developed a new high yielding variety of Kabli gram and named it GORA HISSARI. According to Shri L.D. Kataria, Vice-Chancellor, this new variety has yielded upto 22 quintals per hectare on the HAU experimental farms and 16 quintals on the farmers' field during 1985-86 rabi season. It has medium seed size and is rich in protein and has less crude fibre content.

This new variety has almost double the yield than L-144 which is the only other Kabli gram variety recommended for Haryana. The release of this variety is a big breakthrough in cultivation of Kabli gram.

News from UGC

Swami Pranavananda Awards Presented

Dr. Manmohan Singh, Deputy Chairman, Planning Commission presented Swami Pranavananda Awards in Education, Sociology, Economics, Political Science and Environmental Science and Ecology for the years 1986 & 1987 to eminent educationists and scholars for their important contribution to human knowledge in their respective fields.

Speaking on the occasion, Dr. Manmohan Singh called upon the intelligentsia of the country to meet the challenge of explosion of knowledge in their respective fields with corresponding explosion of consciousness. Indian scholars all along have been making great contributions in Humanities and Social sciences which need to be recognised by the academic communities and institutions like the UGC.

Dr. Singh also suggested that the knowledge should be translated into application for the benefit of society. While environmental and ecological protection is necessary, it should not be stretched to an extent when it becomes a retarding factor on economic growth of which a developing country like India is in very urgent need.

The educationists and scholars selected for these awards were:

Education

1. Professor S. Nurul Hasan,
   Governor of West Bengal (1986)
2. Dr. (Mrs.) Madhuri R. Shah,
   Former Chairperson, UGC
   (1987)

Sociology

1. Dr. M.S. Gore,
   Former Vice-Chancellor,
   Bombay University (1986)
2. Prof. A.R. Desai of Bombay
   (1987)

Economics

1. Dr. Amartya Sen of Oxford
   (U.K.) University (1986)
2. Prof. Jagdish Bhagawati of
   Columbia (USA) University
   (1987)

Political Science

1. Prof. Iqbal Narain,
   Member Secretary — ICSSR
   New Delhi (1986)
2. Prof. G. Ram Reddy,
   Vice-Chancellor,
   Indira Gandhi National Open
   University, New Delhi (1987).

Environmental Science and Ecology

1. Prof. R. Misra,
   Fellow of N.S.A. (1986)
2. Prof. S. Krishnaswamy,
   Vice-Chancellor,
   Madurai Kamaraj University
   (1987).

The awards, which are of the value of Rs. 10,000/- each, are given away annually out of the funds of Rs. 5 lakh placed by Swami Pranavananda Saraswati, Director, Yoga Societies in America at the disposal of the University Grants Commission. These are given to Indian nationals working in the university system or associated with the university or institutions recognised for research/advanced study, for their contributions made in the above mentioned fields, either individually or as a team.

Dr. (Mrs) Madhuri R. Shah and Prof. Iqbal Narain accepted the awards but without the cash which goes with it.

More Universities Introduce M.B.A. Programme

The University Grants Commission (UGC), on the recommendation of the All India Board of Management Studies, has approved the introduction of M.B.A. Pragammes at eleven more universities and has also agreed to provide assistance for this purpose. These universities are:

(1) Sri Krishna Devaraya University Anantpur Distt.
(2) Sri Sathya Sai Institute of Higher Learning, Prasanthinilayam, Andhra Pradesh.
(3) Anna University, Madras.
(4) Bharathiar University, Coimbatore.
(5) Madurai Kamaraj University, Madurai.
(6) Pondicherry University, Pondicherry.
(7) Devi Ahilya Vishwavidyalaya, Indore.
(8) University of Calcutta, Calcutta.
(9) Utkal University, Bhubaneswar.
(10) Berhampur University, Berhampur.
(11) Sambalpur University, Sambalpur.

The total number of universities conducting M.B.A. courses will rise to 36, as 25 universities are already running this programme.

Upper Age Limit for JRF Exam. Raised

The University Grants Commission (UGC) has raised the upper age limit for the candidates appearing in the Junior Research Fellowship Examination to be held on 20th September, 1987 from 25 years to 28 years. The examination is conducted to determine the eligibility of candidates for the award of junior research fellowship in the subjects falling under the Faculties of Humanities (including Languages) and Social Sciences.

The upper age limit for admission of the examination shall now be 28 years as on 1st July, 1987 relaxable upto 5 years in the case of (i) women candidates, (ii) candidates belonging to SC/ST categories; and (iii) those who have experience of research or training. The last date for the receipt of applications at the university examination centres has also been extended to 8th June, 1987. The other terms and conditions as notified ealier would remain the same.

Sports News

Novel Scheme for the Promotion of Sports

Gandhiji University, Kottayam, Kerala has embarked on a novel scheme to promote sports. The scheme provides training to the people of all age groups, students and non-students alike. The University covers 5 revenue districts in Central Kerala.

The training programme has three phases. The initial phase is meant to create an awareness among the people. This lasts for one month. Gandhiji University provides all its facilities free of charge to the campers. This includes sports equipment and the services of outstanding coaches. All major items including Athletics, Football, Volleyball, Handball, Hockey, Basketball are covered.

A Coaching Camp in Progress

The promising participants selected from the initial coaching camp and outstanding sports talents from the area will be admitted to the second phase of the training programme. Here all the expenses including food and accommodation will be met by the University. This coaching will be conducted at different places depending upon the item.

The third phase will be for the truly talented. They will be selected according to the performance in the second phase. This training will be highly specialised.

The response to the initial camp is tremendous. More than 500 are attending the training camps.

Gandhiji University has a number of achievements to its credit. Olympian Shiney Abraham is the product of this University.

It is a fact that people do not get enough opportunities to prove their talents. So Gandhiji University has taken up the responsibility to provide maximum opportunity to the people of the area. The talented sports persons will be sponsored by the University.

Kerala is a thickly populated place and most of the villages do not have enough space to be spared for play courts. Naturally, facilities for the promotion of sports are limited. The endeavour of the University is to pick and train talent at the younger age.

Three Pronged Strategy for Sports Promotion

The Guru Nanak Dev University proposes to adopt a three pronged Strategy for sports promotion in the University. In the first place, it is proposed to approach the State Government for reservation of certain percentage of seats in the Punjab Civil Service and the Punjab Police Service for talented sports men and women. It will provide sports persons better employment opportunities and a secured future. Secondly, the University has decided to concentrate on the sports master plan which stipulates construction of a gymnasium, a swimming pool and an athletic stadium. Big industrial houses, public sector undertakings, and the district administration will be approached for the necessary funds. A poly-grass hockey field is also likely to be laid with the support of the Sports Authority of India. Finally, the Guru Nanak Dev University plans to honour outstanding coaches. Special annual awards are proposed to be instituted for the coaches. The strength of coaches in the university is also likely to be raised.

'Yatra' for National Integration

22 Postgraduate students pursuing studies in Physical Education in the Amravati University have undertaken an adventure programme-cum-'Shanti Yatra' on Scooters. The objective of the 'Yatra' is to propagate National Integration in the country.

During the 'Yatra', the group will visit States of Maharashtra, Goa, Karnataka, Tamil Nadu, Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, Himachal Pradesh, Jammu and Kashmir, Rajasthan and Union Territories of Chandigarh and Delhi in their month long programme from May 23 to June 20, 1987. Important educational institutions and sports centres of the country are proposed to be visited by the adventurous team.

INDIAN INSTITUTE OF SCIENCE

BANGALORE-560 012.

REQUIRES

SYSTEMS PROGRAMMER in the Department of Computer Science and Automation at the Institute.

QUALIFICATIONS AND EXPERIENCE

Essential: M.E. in Automation or Computer Science/Engineering or related areas with exposure to concepts in systems programming and programming languages.

Desirable: (i) Experience in programming in PASCAL/C/MODULA langauages. (ii) Knowledge of POP/11, IBM Compatible PC and 68020 based systems. (iii) Experience in systems programming teaching and/or programming work. (iv) Exposure to digital systems hardware.

Emoluments: Rs. 2,123/- p.m. in the scale Rs. 700-1300. Grade likely to have upward revision when IV Pay Commission recommendations become effective.

Details and prescribed application forms can be obtained on request accompanied by a crossed postal order for Rs. 5/- (free of cost to SC/ST on production of Caste Certificate from a competent authority) drawn in favour of 'REGISTRAR', Indian Institute of Science, Bangalore-12 along with a self-addressed stamped (Rs. 5.40) envelope of the size 28 x 18 cms. **on or before 17th JUNE, 1987.**

R(IA)308-22 87 **REGISTRAR**

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
June 1-30, 1987	Summer School in Plasma Physics	To give broad exposure of plasma physics to the students of M.Sc. in Physics and fresh research scholars	Department of Physics, Ravishankar University, Raipur (M.P.)	Dr. S. Guha, Convenor, Dept. of Physics, Ravishankar University, Raipur (M.P.)
July 3-4, 1987	National Symposium on Development of India's Mineral & Fuel Resources	To discuss the entire spectrum of mineral sector—metallic and non-metallic minerals, coal, ground water, oil and natural gas.	Department of Applied Geology, Indian School of Mines, Dhanbad.	Prof. K.L. Rai, Convenor, Diamond Jubilee National Symposium, Department of Applied Geology, Indian School of Mines, Dhanbad - 826004.
July 22-24, 1987	15th National Conference on Fluid Mechanics and Fluid Power	To bring together researchers and designers, working in diverse fields like Mechanical, Civil, Power, Aeronautical and Chemical Engg. besides Mathematics and Physics to review the state of the art and the recent developments.	Regional Engineering College, Srinagar in collaboration with National Society of Fluid Mechanics and Fluid Power.	Dr. A.M. Bhat, Organising Secretary, 15th National Conference on Fluid Mechanics and Fluid Power, Department of Mechanical Engineering, Regional Engineering College, Srinagar 190 006.
November 16-20, 1987	Seventh National Symposium on Radiation Physics	To provide a forum for a collective discussion and identification of the emerging new directions in the field of Radiation Physics	Department of Physics, Mangalore University in collaboration with the Indian Society for Radiation Physics	Dr. N. Lingappa, Convenor, Programme Committee, NSRP-7 and Head, Department of Physics, Mangalore University, Mangalore.
November 19-21, 1987	Eighth Maharashtra Political Science Conference.	Main topics proposed to be discussed are: (1) National-Integration; (2) Politics of Education; (3) Politics of World Peace; (4) Politics of Terrorism.	Nutan Mahavidyalaya, Sailu.	Sh. D.R. Kulkarni, Principal, Nutan Mahavidyalaya, Sailu - 431503 Dist. Parbhani. (Maharashtra).
November 26-28, 1987	International Seminar on Instrumental Methods of Electro-Analytical Techniques.	To provide a forum to research workers and practitioners for exchange of information and technical perceptions in instrumental methods of electroanalysis.	Indian Institute of Science, Bangalore.	Prof. M.H. Dhananjaya Principal and Chairman of the Organising Committee, S.J. College of Engg., Mysore.
December 7-11, 1987	Seventh Triennial International Conference on Thin Films. (ICTF-7)	To take stock of recent progress in the field of science, technology and applications of their films.	Indian Institute of Technology, New Delhi, in collaboration with IUVSTA Thin Film Division and Indian Vacuum Society.	Dr. Lalit Malhotra, Secretary, ICTF-7, Thin Film Laboratory, Deptt. of Physics, Indian Institute of Technology, New Delhi-110016.
December 16-18, 1987	International Symposium on Electronic Devices, Circuits and Systems	To provide a forum to research workers all over the world for exchange of information and technical perceptions in electronic devices, circuits and systems.	Indian Institute of Technology, Kharagpur	Prof. N. B. Chakravarti, Department of Electronics and Electrical Communication Engineering, Indian Institute of Technology, Kharagpur - 721302

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

ADDITIONS TO AIU LIBRARY

Allaway, William H. and Shorrock, Hallam C. *Dimensions of international higher education: The University of California symposium on education abroad.* Boulder, Westview, (c1985) xxiii, 149p.

Bhatt, S.R. *Knowledge, value and education : An exionoetic analysis.* Delhi, Gian Pub. House, (c1986) xii, 88p.

Bok, Derek. *Higher learning.* Cambridge, Harvard University Press, (c1986) 206p.

Camilleri, C. *Cultural anthropology and education.* London, Kogan Page, 1986. 171p.

Castro, Luis and others. *Advanced programmers guide.* Delhi, B.P.B. Publications. ix, 679p.

Dutta, Tapti. *Microcomputer in special education.* Gurgaon, Academic Press, 1986. iii, 119p.

Fox, Richard G. *Lions of the Punjab: Culture in the making.* Delhi, Archieves Pub, 1987. xv, 259p.

Gupta, Yogesh Kumar. *Contemporary research on teacher effectiveness.* Delhi, Shree Publishing House, 1986. vii, 110p.

Hatcher, Evelyn Payne. *Art as culture: An introduction to the anthropology of art.* New York Univ. Press of America, 1985. 286p.

Husen, T. ed. *Educational research and policy.* Oxford, Pargamon, (c1984), ix, 297p.

Kakar, Ajay M. and Vaswani, Deepak A. *Fundamentals of computer science.* Bombay, Himalaya, 1987. discontd.

Khare, Brij B. *Youth and Society : Educational environment in India.* Calcutta, Firma KLM, 1986. vi, 127p.

Lawrence, David. *Advanced programming techniques on the commodore* 64. London, Sunshine Books (c1983) ix, 174p.

Marshall, Stewart and Williams, Noel. *Exercises in teaching communication.* London, Kogan Page, (c1986) 157p.

McCrum, Robert and others. *Story of English.* London, Faber and Faber, 1986. 384p.

Modgil, Sohan and Modgil, Celia, ed. *Jean Piaget: Consensus and controversy.* London, Holt, Rinehart and Winston (c1982) 446p.

Nagarajan, S. ed. *Use of microprocessors in information analysis and library applications : Proceedings.* Delhi, Society for Information Science, 1986. v, 253p.

Osborne, C.W. and Trott, A.J. ed. *International yearbook of educational and instructional technology* 1986-87. New York, Kogan Page (c1986) 481p.

Raghunadha Reddy, C. *Changing status of educated working women: A case study.* Delhi, B.R. Publishing Corporation, (c1986), 210p.

Reilly, Thomas, ed. *Sports fitness and sports injuries.* London, Faber and Faber (c1981) 293p.

Ross, Melcolm. *Assessment in arts education : A necessary discipline or a loss of happiness?* Oxford, Pergamon (c1986) xiv, 214p.

Rowntree, Derek. *Teaching through self-instruction.* London, Kogan Page (c1986), 386p.

Rumble, Greville. *Planning and management of distance education.* London, Croom Helm, (c1986) 259p.

Shinn, Christine Helen. *Paying the piper: The development of the University Grants Committee* 1919-46. London, Falmer, 1986. vii, 324p.

Tilak, Jandhyala, B.G. ed. *Education and regional development.* Delhi, Yatan, 1986. x, 343.

Tucker, Richard N. *Integration of media into the curriculum: An international report.* London, Kogan Page, 1986. (c182p).

Tuckman, Howard P. and Nas Tevfik F. *Educational technology in developing countries.* Allahabad, Chugh, 1987. viii, 149p.

Wells, Katherine F. and Luttgens, Kethryn. *Kinesiology: Scientific basis of human motion.* Philadelphia, Saunders (c1976) xii, 591.

Willis, Bob. *Fast bowling.* Collins, Willow Books, 1984. 112p.

Young, Kenneth E. and others. *Understanding accreditation.* San Francisco, Jossey-Bass (c1983) xxiv, 502p.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

HUMANITIES

Philosophy

1. Narasimha Rao, Manda. *The concept of prana in Indian philosophy with special reference to Upanishadas and Patanjali's Yoga Sutras.* Shivaji.
2. Parekh, Pushpa. *The religion and philosophy of Sri Chaitanya :A comparative and critical study.* Rabindra Bharati.
3. Singh, Gurveen K. *Metaphysical presuppositions of education.* Hyderabad.

Fine Arts

1. Agte, Malati. *The artistic content in Marathi advertisements : A critical study with special reference of advertisements in Marathi dailies and periodicals in the last half century.* SNDT.

Language and Literature

1. Varma, Avdhesh Kumar. *Citation patterns of documents in linguistics researches : A statistical analysis of the literature.* Ravishankar.

English

1. Ashok, A.V. *Aldous Huxley: Major thought patterns from Brave New World to Island.* Madurai.
2. Moktali, Laxmidevi Rajendra. *The Indian novels of Mrs. E.W. Savi.* Shivaji.

Hindi

1. Joseph, Thresiamma. *Works of Dharmaveer Bharathi and his creative personality depicted in them.* Kerala.
2. Joshi, Mahesh Kumar. *Pt. Dwarika Prasad evam unke samsamyik Chhattisgarh ke sahityakaron ka tulnatmak anusheelan.* Ravishankar.
3. Lal, Manjula. *Upanyaskar Amritlal Nagar : Samvedana aur shilpa.* Dayanand.
4. Rajguru, Rajendra Prasad. *Nayee kavita kee manoviagyanik prishthabhoomi.* Devi Ahilya.
5. Ram Rati. *Adhunik Hindi kavita aur asavadan kee samasya, from* 1950 *to* 1980. Dayanand.
6. Shukla, Ram Sewak. *Abujhamadiya boli ke lok sahitya ka bhashaparak adhyayan.* Ravishankar.
7. Sumitra Devi. *Sathottari Hindi kahani mein alagao-bodh.* Dayanand.
8. Tewari, Nandlal. *Sur sahitya mein nari ka swarup.* Ghasidas.
9. Verma, Devi Prasad. *Swachhandatavadi evam chhayavadi kavyon ke sandarbh mein Mukutdhar Pandey kee kavya yatra ka anusheelan.* Ravishankar.

Urdu

1. Oudesh Rani. *Influence of other Indian languages and literature on Deccani Urdu.* Hyderabad.
2. Qureshi, Mohd. Abdur Rehman. *Progress of Urdu in the linguistic states of India since* 1956. Hyderabad.

Oriya

1. Mohapatro, Sudha. *Upendra Bhanjanka sahityare sangeeta.* Berhampur.
2. Pattnaik, Indira. *Kuntala Kumarinka sahityika krutitwa.* Berhampur.

Marathi

1. Kumbhar, Dhondiram Daulu. *Yogiraj Sohirobanath Ambiya yanchya vangmayanchya abhyas.* Shivaji.

Gujarati

1. Patel, Rameshchandra Motibhai. *Gujarati atmakatha : Tena swarupgat prashno.* Patel.

Arabic

1. Quadri, Syed Quamar Peer. *A comparative study of 'Tafseerat-Ahmadish' and 'Tafseer-E-Ayaatil Ahkam' with special reference to style and language.* CIEFL, Hyderabad.

Tamil

1. Johnson, R. *Epic heroes in Tamil.* Kerala.
2. Kandasamy, S. *Contribution of Sethu Mannars to Tamil.* Madurai.
3. Vasanthi, J.K. *A comparative study of Leelathilakam and the Tamil grammatical works.* Kerala.

Telugu

1. Rajeswari, Turlapati. *The post-independence Telugu Novel,* 1947-77. Berhampur.
2. Sumangali, D. *Smt. Kanchanapalli Kanakamma's works: A literary analysis.* Nagarjuna.

History

1. Dharaiya, A.R. *Gandhiji and social reforms in Gujarat, A.D.* 1915 *to* 1930. Saurashtra.
2. Moharana, Surendra Kumar. *Development of tantrik Buddhism in Orissa.* Utkal.
3. Patel, Saroj Kumar. *History of the Sulkis of Kodalaka Mandal.* Sambalpur.
4. Patil, Madhavrao Parasharam. *Court life under the Vijayanagar rulers.* Shivaji.
5. Ramakrishnan, R. *The role of the Press in Princely Mysore.* Bangalore.
6. Sharma, Manorama. *The Assamese Middle class: Its ascendance to hegemony,* 1860-1910. NEHU.
7. Ved, Ila, *History of Kutch: Political, social, economical and cultural development,* 1806-1850. SNDT.

Haryana Agricultural University

HISAR

ADMISSION NOTICE

Applications are invited for admission to the following programmes for the Academic Session 1987-88. Last date for receipt of applications complete in all respects in the Registrar's Office is **20-6-1987**.

No days of grace will be allowed:

1. B.Sc. (Hons.) Agriculture 4-years Programme.
2. B.Sc. (Hons.) Agriculture (Condensed Course) for VIWs/Agriculture Inspectors.
3. B.Sc. (Forestry) 4-years Programme.
4. B.V.Sc. & A.H. (Bachelor of Veterinary Science & Animal Husbandry) 4-years Programme followed by one year's internship.
5. B.S.H. & P.E. (Bachelor of Sports, Humanities & Physical Education) 6-years Programme.
6. B.Sc. (Home Science) 3-years Programme.
7. Masters' Programme: in the various disciplines in Agriculture, Animal Sciences, Basic Sciences, Home Science & Sports (M.P. Ed.).

Complete details about the number of seats, minimum qualifications, reservations, dates for verification of documents etc. for each programme are given in the Prospectus of this University which is obtainable from the Assistant Registrar (Academic), H.A.U., Hisar-125 004 on payment of Rs. 10/- in cash at the Counter or by sending a crossed Indian Postal Order for Rs. 15/- payable to Assistant Registrar (G), H.A.U., Post Office, Hisar. I.P.Os purchased only after the publication of 'Admission Notice' will be accepted.

REGISTRAR

Birla Institute of Technology and Science

PILANI (RAJASTHAN) 333 031

Faculty Recruitment Advt. No. FR/1/87

Applications are invited for faculty positions at various levels (Professors, Associate Professors, Assistant Professors, Lecturers, Assistant Lecturers and Teaching Assistants). Appointments are proposed to be made at all levels in all the disciplines for which the Institute awards degrees at the first degree level namely, chemical, civil, electrical and electronics and mechanical engineering; computer science, instrumentation, pharmacy, management; bosciences, chemistry, economics, mathematics, physics; science and technology development, museum studies, engineering technology and English.

While all the necessary details are available in the free booklet entitled "Introducing BITS to Prospective Faculty, 1987" which can be obtained by any candidate who is interested, this advertisement touches only the highlights.

To get the booklet (weighing 120 gms), please write to the undersigned marking your request 'FR/1/87' enclosing a stamped self-addressed envelope (stamps worth Rs. 5.00) of size 30 × 25 cms. For material to be sent outside India by Air Mail, only international Postal Coupons will be accepted, worth Rs. 33/- for U.S.A.

Minimum qualifications required are: for Teaching Assistant—at least first degree of BITS in the appropriate discipline like B.E., M.Sc., etc., or its equivalent; for Assistant lecturer—a degree higher than the first degree of BITS like M.E., M.Phil., etc. or its equivalent; for Lecturers and above—normally a Ph.D. degree, however persons with unusual experience or potential for growth, who may not possess Ph.D. can also be considered. Due consideration will be given to Scheduled Caste and Scheduled Tribe candidates.

All posts carry UGC salary scales suitably extended. Dearness Allowances is about 65% of the basic salary. A higher starting salary in the grade can be given to candidates commensurate with their qualifications, significant academic/industrial experience, exceptional competence, etc.

Service benefits include C.P.F. and Pension, housing on nominal rent, opportunity to work for higher degree, tuition fee waiver for self, spouse and children in the Institute and local schools.

In addition to normal duties of teaching, research and co-curricular activities, the Institute demands from its faculty a capacity and willingness to face the challenges of teaching and preparation of teaching material in related disciplines and interdisciplinary courses, a flair for participation in developmental and growth processes of the Institute, and involvement in team-work towards innovation and modernisation. All faculty members will be required, whenever assigned, to take up duties in off-campus centres where practice school and similar types of programmes are in operation. Special preference will be given to persons who have the best fit against the above requirements and who have or are willing to acquire competence in computer, modern analytical instrument techniques, etc.

This advertisement is valid for one year from the date of issue. The Institute will review more than once all cases that accumulate during this period.

A. N. Bhargava
REGISTRAR

AIDS
HOW TO PROTECT YOURSELF

AIDS is a dangerous disease and so far there is no known cure fot it. So there are lot of rumours about it. But it is not difficult to protect oneself from it, provided some facts about it are understood.

WHAT IS AIDS?

AIDS stands forAcquired Immuno-Deficiency Syndrome. It is caused by a virus that destroys the body's natural defence system.

HOW IT SPREADS?

The only likely way for someone to catch the AIDS virus is from the blood or semen from an infected person to get inside his or her body.

Most people get AIDS virus by having sex with an infected person. The rest have it by injecting themselves using needles shared with an infected person as happens commonly among the drug addicts. Only rarely transfusion of blood from an infected person have been responsible for its spread.

Not everyone who carries the virus develops AIDS. In fact most will not. But anyone who has the virus can pass it on, even if they feel and look completely well.

YOU DO NOT GET AIDS FROM

- Normal social contact such as shaking hands, touching and hugging.
- Swimming pools, restaurants and other public places.
- Coughs, sneezes and spitting.
- Clothing.
- Toilet seats, door knobs, food, glasses and cups.

YOU DO NOT CATCH AIDS WHEN YOU :

Donate blood.

Have injections or any other treatment from your doctor, dentist or any other health care worker.

WHAT YOU SHOULD AVOID?

- Casual sex with strangers. It is always risky. You may not know that the stranger is an infected person.
- Anal sex. It involves the highest risk and should be avoided.
- The more the sex partners, the more the risk.
- Sharing injection needles with drug addicts.

REMEMBER

AIDS is not a disease to take risk with. There is no cure. AIDS control depends on how people behave.

FOR MORE INFORMATION:

You may write to Asstt. Director General (AIDS), Directorate General of Health Services, Nirman Bhavan, New Delhi—110011

YOU CANNOT CURE AIDS,
BUT YOU CAN CERTAINLY AVOID IT

Issued by CENTRAL HEALTH EDUCATION BUREAU
DGHS, KOTLA ROAD, NEW DELHI—110002.

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PHYSICAL RESEARCH LABORATORY

NAVRANGPURA, AHMEDABAD - 380 009

The Physical Research Laboratory makes four awards called Shri Hari Om Ashram Prerit Dr. Vikram Sarabhai Research Awards, every two years from funds kindly donated by Pujya Shri Mota of Hari Om Ashram of Nadiad. These awards will be made to Indian Scientists, who are not above 45 years of age, on 1st January 1987 for original work in the following fields:

(1) Electronics and Telecommunications.
(2) Planetary and Space Sciences.
(3) Atmospheric Physics and Hydrology.
(4) Systems Analysis and Management Problems.

Although the overall work of the candidates would be taken into account, the work done in India would be given primary consideration.

The candidate should have to his credit at least one or more of the following achievements:

(1) Significant achievement in scientific research.
(2) Important and successful adaptation of new technology.
(3) Planning, development and implementation of systems in the context of science and technology.

The selections for the year 1987 will be completed by December 1987 and the awards presented on 12th August, 1988.

The last date for receiving nominations is **August 31, 1987.** Sponsors are requested to send a two page note (12 copies) summarising the contributions and achievements of the sponsored candidate together with his/her bio-data in a cover marked confidential, addressed to the Director, Physical Research Laboratory, Navrangpura, Ahmedabad- 380 009. Only nominations made for the year of the award would be considered.

More detailed information will be asked for by the Selection Committee, if considered necessary.

BHARATHIAR UNIVERSITY

COIMBATORE-641 046

Advertisement No. E1/4319/87 **Dated : 18.5.1987**

APPLICATIONS ARE INVITED FOR THE POST OF DIRECTOR IN THE BHARATHIAR SCHOOL OF MANAGEMENT AND ENTREPRENEUR DEVELOPMENT

The School of Management functioning since 1984 is currently conducting a full-time MBA Programme and has plans to expand and diversify rapidly in the next few years. The DIRECTOR'S major responsibility will be to provide dynamic leadership for such expansion and diversification into short-term and special-interest programmes (including programmes for service systems) and establish interaction with industry, Government and other relevant agencies. The applicant should possess at least a high Second Class (B Plus or 55%) Master's Degree in Management or related disciplines and a minimum of 20 years of experience out of which at least 10 years must have been in teaching and/or research or administration in a responsible position at a senior level. A Doctorate or an equivalent degree will be an additional qualification.

Persons above the age of 50 will not be considered unless exceptionally qualified.

The consolidated salary will be over Rs. 5000/- per month. In addition, free furnished housing and transport facilities will be provided.

Interested persons may please send their bio-data (6 copies) to the Registrar, Bharathiar University, Coimbatore-641 046 within 3 weeks from the date of publication of this Advertisement.

REGISTRAR

CLASSIFIED ADVERTISEMENTS

ADMISSIONS

ALIGARH MUSLIM UNIVERSITY, ALIGARH

ADMISSION NOTICE NO. IV

Session - 1987-88 **Dated : 9-5-1987**

Applications on prescribed forms are invited from eligible candidates for admission to the following courses for the session 1987-88. The last date for receipt of completed application forms in the Admission Office of the University is mentioned against each course.

S. No.	*Name of the Course*	*Last date for receipt of applications*
1.	B.A. (Hons.)/B.Sc. (Hons.)/B. Com. (Hons.) Part — I of the three year degree course in the Faculties of Arts, Social Sciences, Science, Life Sciences and Commerce	**18-6-1987**
2.	(a) **M .A. (Faculty of Arts) :** Arabic/English/Fine Art/Hindi/Linguistics/Malayalam/Persian/Philosophy/Sanskrit/Urdu.	**20-6-1987**
	(b) **M.A. (Faculty of Social Sciences) :** Economics/Education/History/Islamic Studies/Political Science/Public Administration/Psychology/Sociology	
	(c) **M.Sc. (Faculty of Science) :** Chemistry/Geography/Geology/Mathematics/Operations Research/Physics/Statistics	
	(d) **M.Sc. (Faculty of Life Sciences) :** Bio-Chemistry/Botany/Wild Life/Zoology	
	(e) **M.Sc. (Agriculture) (Centre of Agriculture) :** Entomology/Land Use and Water Management/Microbiology/Nematology/Plant Pathology	
	(f) **Faculty of Commerce**	
	(i) M. Com.	
	(ii) Diploma in Bank Administration (DBA)	
	(iii) Diploma in Secretarial Works (DSW)	
	(g) **Faculty of Theology**	
	(i) Bachelor of Theology (B. Th.)	
	(ii) Master of Theology (M. Th.)	
	(h) **Faculty of Law**	
	(i) LL.B. (Hons.)	
	(ii) LL.M.	
	(i) **Centre of Professional Courses :** Diploma in Professional Courses:	
	(a) Electronics Data Processing and Machine Operation	
	(b) Pest Management	
	(c) Museology	
	(d) Company Law, Banking & Insurance	
	(e) Labour Law & Labour Relations	
	(f) Criminology and Criminal Administration	
	(g) Laboratory Technology (Physical & Chemical)	
	(h) Gem Testing & Art of Lapidary	
	(i) Medical Lab Technology (Radiology)	
	(j) Journalism	
	(k) Applied Art	
	(l) Instrument Technology	
	(m) Medical Lab Technology (Clinical Pathology)	
	(n) Cartography	
	(o) Orthoptics	
	(p) Pisciculture	
	(q) Oral Hygine	

The details of the courses, minimum el gibility requirement, rules for admissio etc. are notified in Guide to Admissio No. 2. Application form and Guide t Admission can be obtained from the Deputy Registrar (Admissions), Post Bo No. 52, Aligarh Muslim University Aligarh - 202001 by post on payment o Rs. 12/- (covering the cost of applicatio form and registration fee upto two choices) through crossed Indian Postal Order drawn in favour of the Finance Officer A.M.U., Aligarh, alongwith a self-addressed envelope of 9" X 6" size affixing stamp worth Rs. 4.60 for one single applicatio form. In case the application form is desired to be sent by Registered Post, stamp worth Rs. 9.10 should be affixed on the self-addressed envelope. If more than one application forms are required, separat stamped envelope should be sent with the requisition. Requisitions for applicatio forms (desired to be sent through post) shall be entertained only if received in thi Office at least a week before the last dat prescribed for receipt of application forms

SUBMISSION OF APPLICATION FORM

(a) **Women Candidates**

External women candidates for admission to B.A. (Hons.) (Arts and Socia Sciences) and B.Sc. (Hons.) (Science an Life Sciences) Courses should send thei applications, complete in all respects supported by the required documents including the attested copy of mark list o the qualifying examination, as well as the registration fee for additional choice, i any, to the Principal, Women's College Aligarh Muslim University, Aligarh 202001 by the specified date.

External women candidates for post graduate and other courses are require to submit their applications complete i all respects, alongwith the documents including attested copy of marklist of th qualifying examination and the requisit fee for additional choice, if any, to th Deputy Registrar (Admissions), Post Bo No. 52, Aligarh Muslim Universit Aligarh - 202001, by the specified date.

(b) **Internal Candidates**

All Internal candidates should subm their applications complete in all respect supported by the required documen including the attested copy of the mark li of the qualifying examination, as well the registration fee for additional choic if any, to the Office of the Provost co cerned, at least two days before the last date for receipt of application.

(c) Others

Rest of the candidates are required to submit their applications, complete in all respects, supported by the required documents including attested copy of mark list of the qualifying examination as well as the registration fee for additional choice, if any, to the Deputy Registrar (Admissions) Post Box. No. 52, Aligarh Muslim University, Aligarh - 202001 by the specified date.

Incomplete applications or those received late will not be accepted, and no further correspondence will be entertained regarding such application.

N. Moideen
CONTROLLER OF EXAMS. & ADMISSIONS

UNIVERSITY OF MADRAS

UNIVERSITY BUILDING
CHEPAUK, MADRAS - 600005

NOTIFICATION

Applications are invited for admission to the following **Postgraduate Courses** in the **University Departments** for the academic year 1987-88.

I. M.A. Degree

Branches

*I-A — History
II-C — Political Philosophy
II-D — Public Management.
III-C — Econometrics.
*III-D— Economics (Indian Economics)
V-B — Indian Philosophy.
V-C — Saiva Siddhantha.
VI-E — Applied Psychology and Psychological Services (Specialisation A-Industrial and Organisational Psychology and Guidance and Counselling).
VII — Urdu, Persian, Hindi, French, Kannada, Malayalam, Telugu* (Special).
VII-A — Sanskrit.
VII-B — Tamil (Special).
VIII — Indian Music.
IX — Ancient History and Archaeology.
XIII — Sociology.
XIV — Anthropology.
XVI — Defence Studies.
*XVII— Andragogy.
*M.A. Work Education
M.A. Communication.
*M.A. Criminology.
M.A. Jainology.
M.A. Vaishnavism.

II. M.Sc. Courses

Branches

I-A — Mathematics.
II — Statistics.
+III-A — Biophysics.
*III-C — Physics, (Specialisations :
(a) Theoretical Physics.
(b) Nuclear Physics.
*IV-B — Analytical Chemistry.
IV-C — Physical Chemistry.
IV-D — Organic Chemistry.
IV-E — Inorganic Chemistry.
IV-F — Polymer Chemistry.
VI-C — (Special) Zoology.
VII-A — Applied Geology.
VIII-A — Applied Geography.
VIII-B — Cartography.
X — Biochemistry.

III. *M. Com. (Business Systems).

IV. Master of Library and Information Science (M.L.I.S.).

V. M.L. (International Law and Constitutional Law).

*Conducted on an interdisciplinary basis.

+For M.Sc. Biophysics four Scholarships of the value of Rs. 250/- p.m. are available for meritorious candidates and 50% out of it (i.e. 2) will be awarded to students coming from outside Tamil Nadu State.

Prospectus and application forms can be had from **the Registrar, University of Madras, Madras-600 005 from 25th May, 1987** on requisition with a **Demand Draft for Rs. 30/-** drawn in favour of **the Registrar, University of Madras** (together with a self-addressed stamped envelope of size 28 x 13 cms for the value of Rs. 1.80 in the case of postal requisitions). **Postal Orders and Money Orders are not accepted.** The last date for receipt of filled in applications will be **TEN** days from the date of publication of results of qualifying degree examinations of **this University. Filled up applications should be sent directly to the Head of the University Department concerned (not to the Registrar, University of Madras) before the expiry of the last date.**

The University reserves the right to start or suspend the conduct any of the above courses, if the circumstances so warrant.

Major Dr. P. Kuttiappan
REGISTRAR

GURU NANAK DEV ENGINEERING COLLEGE

Bidar-Mailoor Road, Bidar-585 403 (Karnataka)

ADMISSION NOTICE

Applications are invited in the prescribed form for admission to the first year of four year Bachelor of Engineering Degree Course in Civil, Electrical, Mechanical, Industrial and Production, Electronics and Communication Engineering and Computer Science for the academic year 1987-88.

Application forms alongwith prospectus can be had from the College Office on payment of Rs. 100/- (Rupees one hundred only) on any working day. The Application forms can also be had by post by remitting an amount of Rs. 110/- (Rupees one hundred and ten only) through a Crossed Demand Draft/Indian Postal Order drawn in favour of Principal, Guru Nanak Dev Engineering College, Bidar. No other mode of payment will be accepted.

Application forms, duly completed, alongwith attested copies of all certificates required to be furnished will be accepted on or before **31st July, 1987**.

S. Joga Singh
CHAIRMAN

Dr. M. S. Sukhija
PRINCIPAL

BHOPAL UNIVERSITY

BHOPAL

DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS
(1987-88)

ADMISSION NOTICE

No. 1608/BU/Comp./87

Dated: 18-5-1987

Applications are invited for admission to Post. B.Sc. Diploma in Computer Science and Applications. Admission to this course is based on (i) academic record, (ii) written test, and (iii) interview. The aim of the test to find out individual's logical, mathematical, and analytical ability. Only those candidates who qualify the written test will be called for the interview. In all cases, the decision of the admission committee will be final and binding on the candidates.

The duration of the course will be one academic year, comprising two semesters and a project work according to U.G.C./ D.O.E. guidelines.

Eligibility

(a) Minimum 60% marks (55% for SC/ST) in B.Sc./M.Sc./B.E./M.Com./ M.Sat./M.A. (economics)/M.B.A.

Or

(b) Minimum 60% marks (55% for SC/ST) in B.A./B. Com. with at least one of the following major subjects :

(i) Mathematics, (ii) Statistics,
(iii) Economics, (iv) Commerce.

The Scheduled Caste/Tribe will be given a relaxation of 5% on the total of above three criteria.

If at any stage it is found that a candidate does not satisfy the eligibility condition or the information furnished in the application is incorrect or his progress is not satisfactory, the university has all rights to cancel his/her admission.

Prescribed application forms can be obtained from the office of the Head of the Department by sending a written requisition accompanied by a crossed IPO of Rs. 8/- payable to the Registrar at Bhopal University post office, and a self addressed envelope of size 23 cm x 10 cm affixed with a stamp of Re. 1/-. Completed application forms along with a crossed IPO Rs. 20/- (Rs. 8/- for SC/ST) payable to the Registrar must reach the Head of th Department latest by **1st July, 1987**. Car didates belonging to SC/ST must attach certificate from the appropriate authority.

Date of Written Test : 12th JULY, 198 (SUNDAY) at 11.30 A.M.

R.B. Malviy
REGISTRAR

POST GRADUATE INSTITUTE OF MEDICAL EDUCATION & RESEARCH, CHANDIGARH

ADMISSION NOTICE No. 3/87

Applications on prescribed form are invited by **23-6-87** for following courses etc. commencing at the Institute from July, 1987:

I. M.Sc. (Biochemistry)

Minimum admission requirements : B.Sc. passed from a recognised University with atleast 55% marks for general candidates and 50% for candidates belonging to Scheduled Castes/Tribes.

II. M.Sc. (Pharmacology)

Admission requirements: MBBS or B.Sc. (Anatomy, Physiology and Biochemistry taken together) or B.V.Sc. or B. Pharma degree from a recognised University.

Applications are also invited for:

FIRST YEAR JUNIOR RESIDENT (HOUSE JOBS) : 3 posts (2 general and one reserved for Sch. Castes/Tribes) for the Departmen of DENTISTRY for a period of six months w.e.f. **1-7-1987**.

Candidates must be B.D.S. passed from a University recognised b the Dental Council of India with not more than one failure during B.D.S career for the general seats and not more than two failures for the reserve seat. These seats were earlier advertised by the Institute in March, 198 (Admission Notice No. 1/87) and those who have already applied need n apply again. Their previous applications will be considered.

Application form and detailed information are available from th office of the undersigned either personally on payment of Rs. 5/- at th counter (from 11 A.M. to 12 noon and 3 P.M. to 4 P.M. on all workin days) or by post for which the request must be accompanied with a se addressed envelope size (23 cms. x 10 cms.) bearing postage stamps Rs. 3.40 and a crossed postal order/bank draft for Rs. 5/- drawn in favo of the Director of the Institute.

REGISTRA

ALIGARH MUSLIM UNIVERSITY, ALIGARH

ADMISSION NOTICE NO. V

SESSION-1987-88

Applications on prescribed forms are invited from eligible candidates for admission, based on Competitive Test/Test and Interview to the following courses for the session 1987-88. The minimum qualification, duration, last date for receipt of application forms and dates for admission tests are mentioned against each course:-

Sl. No.	Course and Duration	Minimum Qualification	Last date for receipt of Applications	Dates for Tests
1	2	3	4	5
I. Faculty of Engg. and Technology				
1.	B.Sc. Engineering Chemical/Civil/ Electrical/Mechanical/Electronics 4 Years	Senior Secondary School Certificate/ Intermediate or an equivalent exam. with English, Physics, Chemistry and Mathematics with not less than 45% marks in aggregate. *OR* Diploma in Engg. of this University with at least Second Division.	25.6.87	19.7.87
II. Faculty of Medicine				
2.	M.B.B.S. 4½ Years	Senior Secondary School Certificate/ Pre-Medical Examination of this University or an equivalent Exam. with not less than 50% marks in English and in the aggregate of Physics, Chemistry and Biology. *OR* B.Sc. (Hons.) of this University or an equivalent examination with Chemistry, Zoology and Botany with not less than 50% marks in the aggregate of Science subjects and 50% marks in English separately, provided the candidate has passed an examination in Physics of P.M.C. standard or an equivalent examination.	30.6.87	26-27.7.87
III. Faculty of Unani Medicine				
3.	Pre-Tib (leading to main course of Kamil-e-Tib-o-Jarahat (BUMS) of 5½ years duration) 2 Years	Secondary School Certificate/High School examination or an equivalent examination recognised by the University. *OR* Alim (Arabic), Kamil (Persian) Adib Kamil (Jamia Urdu, Aligarh) examination or a 'Farighul Tahsil' from a Dars-e-Nizami Madarsah.	12.6.87	14.7.87
4	M.D. (Ilmul Advia/ Kulliyat-wa-Ilmul Amraz/Moalijat) 3 Years	(i) BUTS/BUMS/BUMMS/Kamil-e-Tib-o-Jarahat (BUMS) examination of this University or an examination recognised by the University as its equivalent with 60% marks in the subject concerned. (ii) House Job/Internship for not less than six months. *OR* Certified clinical experience of Unani Matab of at least two years after passing BUMS or an equivalent examination of the satisfaction to the Chairman of the	25.6.87	17-18.7.87

1	2	3	4	5
		Department and the Dean of Unani Medicine. Provided that for MD (Moalijat), six months House Job in Moalijat is essential.		
IV. Faculty of Commerce				
	5. Master of Business Administration (M.B.A.) 2 Years	B.A./B.Sc./B.Com./B.Sc. Engg./B.Sc. (Agriculture) or an equivalent examination with not less than 50% marks in aggregate.	27.6.87	16.7.87
	6. P.G. Diploma in Portfolio Management 1 Year	Bachelor's degree with at least 50% marks in aggregate.	27.6.87	29.7.87
	7. P.G. Diploma in Co-operation and Rural Development 1 Year	Bachelor's degree with at least 50% marks in aggregate.	27.6.87	29.7.87
	(Note: Candidates holding the degree of B.Sc. (Agr.) and Diploma or higher Rural Education of the Government of India shall also be eligible to apply for admission to Diploma in Co-operation and Rural Development).			
	8. P.G. Diploma in Entrepreneurship 1 Year	Bachelor's degree with at least 50% marks in aggregate.	27.6.87	29.7.87
V. Faculty of Science				
	9. Master in Computer Science and Application (M.C.A.) 3 Years	B.Sc. degree with at least 60% marks in the aggregate with Physics and Maths/Statistics as main or subsidiary subjects.	29.6.87	18.7.87
	10. Post B.Sc. Diploma in Computer Science and Application (P.D.C.A.) 1 Year	B.Sc. degree with at least 60% marks in aggregate with Physics and Mathematics/Statistics as main or subsidiary subjects.	29.6.87	18.7.87
	11. P.G. Diploma in Hydro-geology 1 Year	M.Sc. or M.Tech. in Geology/Applied Geology or Geo-Physics with not less than 55% marks in aggregate or B.Sc. Engg. (Civil) with 65% marks in aggregate.	29.6.87	20.7.87
VI. Faculty of Social Sciences				
	12. B.Ed. 1 Year	(i) B.A./B.Sc./B.Com. or an equivalent examination with at least 50% marks in the aggregate with at least two of the following school subjects : English/Urdu/Hindi/History/Geography/Civics/Economics/Physical Sciences/Biological Sciences/Mathematics/Home Science/ Commerce. (ii) Master's degree in any school subject in IInd Division if aggregate percentage at graduate level is less than 50%.	22.6.87	25.7.87
	13. M.Ed. 1 Year	B.Ed. or an equivalent examination with at least 50% marks in the aggregate of theory papers of B.Ed. or an equivalent examination.	30.6.87	24.7.87
	14. B.Lib. Science 1 Year	B.A./B.Sc./B.Com. examination of this University or an equivalent examination with at least 48% marks. *OR* B.A./B.Sc./B.Com. Exam. having 45% marks with Library experience of 5 years in a recognised library.	20.6.87	23.7.87

1	2	3	4	5
		OR B.A./B.Sc./B.Com. Exam. having 45% marks with Master's degree in IInd Division from this University or from any other recognised University/Institution.		
15.	M.Lib. Science 1 Year	(i) B.Lib. Science or an equivalent examination with at least 48% marks in aggregate. (ii) Librarians working on responsible positions in the recognised institutions, provided they have obtained the B.Lib.Sc. degree in IInd Division may also be considered eligible.	30.6.87	22.7.87
VII.	**Institute of Biotechnology**			
16.	M.Sc. Biotechnology 2 Years	Bachelors' degree in Biological Sciences, Physical Sciences, Agriculture, Veterinary Sciences and/or a Bachelor's degree in Engineering Technology (B.Tech.) or Medicine (M.B.B.S.) with at least 50% marks.	26.6.87	12.7.87
VIII.	**Centre of Professional Courses**			
17.	Diploma in Computer Programming 1 Year	Bachelor's degree of this University or an examination recognised by this University as its equivalent with 50% marks in aggregate.	29.6.87	17.7.87
IX.	**School of Nursing**			
18.	Diploma in General Nursing and Midwifery Course 3½ Years	Senior Secondary School Certificate/ Intermediate or an equivalent examination. (Those who have passed the qualifying examination with Science subjects and English will be given preference.	20.6.87	21.7.87

Admissions to courses at serial Nos. 2, 3, 4 and 14 are based on written competitive Test only, while admission to the remaining courses will be on the basis of written Competitive Test and Interview.

Full particulars regarding the courses, fees payable, rules for sending applications etc. are givern in the Guide to Admission Tests No. 3. Copies of application forms and Guides to Admission Tests can be obtained through post, from the Deputy Registrar (Admissions), Post Box No. 52, Aligarh Muslim University, Aligarh-202 001 by sending a crossed Indian Postal Order, for Rs. 3/- drwan in favour of the Finance Officer, A.M.U. Aligarh alongwith a self-addressed stamped (for Rs. 5.40 envelope of 9" x 6" size. In case the application form is desired to be sent by Registered Post, stamps worth Rs. 9.90 should be affixed on the self-addressed envelope. If more than one application forms are required, separate stamped envelope should be sent with the requisition. The request for application form should clearly state the NAME OF THE COURSE for which the application for admission is required. Requisitions for application forms (desired to be sent through post) shall be entertained only if received in this Office at least a week before the last date prescribed for receipt of application forms.

Application forms of external candidates complete in all respects together with crossed Indian Postal Order for the value given in the Guide to Admission (Rs. 25/- for courses No. 3, 6, 7, 8, 12, 14, 17 and 18 and Rs. 35/- for other courses) towards registration and Admission Test Fees (Non-refundable) drawn in favour of the Finance Officer, A.M.U. Aligarh, should reach the Deputy Registrar (Admissions), Post Box No. 52, Aligarh Muslim University, Aligarh- 202 001 by 5.00 P.M. on the last date mentioned against the couse concerned.

Applications of Internal candidates, complete in all respects with requisite fees and documents including attested copy of mark list of the qualifying examination, should be submitted to the Provost concerned at least two days before the last date for the receipt of the application forms in the Admission Office.

Incomplete applications or those received late will not be accepted and no further correspondence will be entertained regarding such applications.

N. Moideen
CONTROLLER OF EXAMS. AND ADMISSIONS

APPOINTMENTS

BIRLA INSTITUTE OF TECHNOLOGY

MESRA : RANCHI

Advertisement No. 3/87

Applications are invited for the following posts:

Category of Posts

(1) Associate Professors

Pay-Scale : Rs. 1200-50-1300-60-1900/- (Gross emoluments on minimum Rs. 2850/- approx.)

(a) Mathematics - 1 Post. Operation Research/Applied Statistics, Mechanics of Solids or Fluids/Bio-Mechanics.

(b) Pharmacy - 1 Post. Pharmaceutics.

(c) Computer - 4 Posts. Numerical Algorithms and Finite Element Computations, Computational Fluid Mechanics, Artificial Intelligence. Coding Theory, Data based Management Systems, Computer Graphics.

(2) Assistant Professors

Pay Scale : Rs. 700-40-1100-50-1600/- (Gross emoluments on minimum Rs. 1890/- approx).

(a) Pharmacy - 4 Posts. Pharm Chemistry/Pharmaceutics/Pharmacology/Pharmacognosy.

(b) Computer - 3 Posts. Computer Graphics, Data based management systems, Programming Languages, Net work analysis, Data structure and graph theory.

(c) Electronics and Communication—2 Posts. Microwave Engg. Digital Electronics and Microprocessors, Communication Systems.

(d) Space Engg. & Rocketry - 3 Posts. 2 in Aerodynamics and 1 in Propellant Chemistry- with reference to Gelled Propellants.

(3) Programmer - 1 Post.

Pay Scale : Rs. 700-40-1100-50-1300/- (Gross emoluments on minimum Rs. 1890/- approx).

Higher starting admissible to highly qualified and experienced candidates. Accommodation on Campus on nominal rent is provided by the Institute.

Qualifications & Experience

1. **For Associate Professor :** A good academic record with a first class post-graduate Degree followed by a Doctorate Degree/Ph.D. in the relevant field. A minimum of five years teaching experience at a University level. Competence in the area of specialisation. Desirable—Membership of recognised Institutions.

2. **For Assistant Professor :** Master's degree in appropriate branch and consistently good academic record with first class at Bachelor's and/or Master's degree level with at least two years experience in teaching/industry/research. Desirable—Ph.D. in relevant field.

3. **For Programmer :** M.A./M.Sc. Maths/Statistics or Bachelor's degree in Engineering with minimum 2 years experience of programming. Thorough knowledge of any or more languages—FORTRAN, COBAL, BASIC or PASCAL.

Application on plain paper with crossed postal order of Rs. 5/- payable to Registrar, Birla Institute of Technology, Mesra, Ranchi with complete bio-data, published work, degree and other certificates may be sent to the Registrar, Birla Institute of Technology, P.O. Mesra 835215, Ranchi not later than **30-6-1987.**

Preference will be given to SC/ST candidates.

J.B. Saksena
REGISTRAR & OSD

MAHARSHI DAYANAND UNIVERSITY

ROHTAK

Advertisement No. 1/87

Applications on prescribed form are invited for the following posts for Computer Centre :-

1. Head of Computer Centre (Systems Manager) - One Rs. 1100-1600 (UGC).
2. Systems Engineer - (One) Rs. 1100-1600 (UGC).
3. Programmer - (One) Rs. 700-1300 (UGC).

Qualifications

Head of Computer Centre (Systems Manager)

Master's level degree in Computer Technology or Electronics with specialisation in computer hardware, with experience.

Systems Engineer

Master's level degree in Computer Science with specialisation in software engg. with experience.

Programmer

1. Master's/Bachelor's level degree in software engg.

2. Master's level in the applications area.

The posts carry all other allowances and benefits of contributory provident fund admissible as per university rules. Higher start admissible in deserving cases. Knowledge of Hindi essential for all posts. Number of posts is liable to be increased or decreased.

The applications will be screened by a Committee to be appointed by the Vice-Chancellor. The Screening Committee will be competent to screen applicants and classify them on the basis of qualifications and experience and call for interview only the selected candidates.

Reservations for Ex-servicemen/B.C./S.C./S.T. candidates as per rules. However, where the candidates under reserved categories are not available, the posts will be filled from amongst the general category's candidates.

Applications are to be submitted on the prescribed form, alongwith attested testimonials and crossed postal order(s) for Rs. 10/- drawn in favour of the Finance Officer, M.D. University, Rohtak, payable at the post office, Rohtak. Applications (through proper channel from those in employment) complete in all respects should reach the Registrar, M.D. University, Rohtak by **25-6-1987**. The application form can be had from the Asstt. Registrar (Gen.) on payment of Rs. 2/- at the counter and Rs. 3/- by ordinary post.

REGISTRAR

UTKAL UNIVERSITY

VANI VIHAR, BHUBANESWAR-4

Advt. No. Estt. I/886-C/Vol. IV/A-7786/87

Dated : 18th May, 1987

Applications in Seven copies are invited in the prescribed forms alongwith attested copies of certificates and marklists of all examinations passed for the following posts (with specialization indicated, if any) of the University so as to reach the Registrar, Utkal University, Vani Vihar, Bhubaneswar - 751004 on or before the **17th June, 1987** from inland candidates and the **30th June, 1987** from candidates abroad.

2. Prescribed application forms can be had from the University Information Counter on production of a Bank receipt from S.B.I. Vani Vihar or a Crossed Bank Draft payable at S.B.I. Vani Vihar or a Crossed Indian Postal Order worth Rs. 30/- (Rupees thirty only) drawn in favour of the Finance Officer, Utkal University, Vani Vihar, Bhubaneswar - 4 in person or by post or receipt of a Crossed Bank Draft/Crossed Indian Postal Order worth Rs. 30/- (Rupees thirty only) and a self addressed Envelope (23 cm x 10 cm) size duly affixed with postage stamps worth Rs. 6/- (Rupees six only) superscribed thereon with the words "APPLICATION FORM FOR TEACHING POSTS UNDER UTKAL UNIVERSITY".

3. The details regarding scales of pay and other allowances, age of superannuation as well as educational qualifications for the posts and other conditions can be had from the University counter alongwith the prescribed forms.

4. POSTS (with specialization if any indicated in the bracket):

Serial No. 1

Professor - (a) Anthropology: One (Leave Vacancy); (b) Analytical and Applied Economics, RBI Chair, Scheme post: One (Institutional Finance); (a) S.B.I. Chair, Scheme post : One (Rural Economics); (d) Library & Information Science : One (Retired persons below sixty five years may apply); (e) Physics; One (Electronics); (f) Chemistry : One (Nuclear Chemistry); (g) Commerce: One (Management), (h) Mathematics : One (i) History: One (j) Law Professor-cum-Principal: One; (k) Professor of English Language Teaching Centre: One (Linguistic).

Serial No. 2

Reader - (a) Anthropology : One (Developmental Anthropology/Population Studies) (b) Analytical and Applied Economics: Two (One Mathematical Economics); (c) Computer Science : One; (d) Mathematics: One ; (e) Psychology: One C.A.S. Scheme (Cognitive growth of Children); (f) Political Science: Two; (g) English: Two; (h) Oriya: One (Modern Oriya Literature); (i) Chemistry : One; (i) Zoology: Two; (One in Environmental Biology); (k) Geography: Two; (l) Botany: One (Environmental Biology) (m) Labour Welfare: One.

Serial No. 3

Lecturer - (a) Anthropology : Two; leave vacancy - (one in Social Anthropology and the other pre-historic Archaeology); (b) Analytical & Applied Economics : Two (one leave vacancy with Mathematical Economics and the other Lien Vacancy); (c) Library and Information Science: Two; (d) Chemistry : Three (one in Theoretical Chemistry); (e) Statistics: One; (f) Psychology: One C.A.S. Scheme leave vacancy; (g) Political Science: One (h) English: Two (one leave vacancy); (i) Sanskrit: One (Vedic Literature/Linguistic with knowledge in atleast One European Language other than English); (i) Commerce: Two (one for Directorate of Correspondence courses) (k) Sociology : One; (l) Geology: One; (m) Law Whole-time-Lecturer: Four; (n) Law Part-time Lecturer: Eight.

Candidates those who have applied for the post of Professor of History, Professor of Economics, S. B. I. Chair, Reader in Zoology, and Reader in Geography earlier in response to this Office Advertisement dated 10-10-85 and 27-12-85 need not apply afresh.

REGISTRAR

ASSAM AGRICULTURAL UNIVERSITY

JORHAT - 13.

Advt. No. 3/87

Applications are invited in the prescribed application form for the following temporary posts in the Assam Agricultural University.

1. **One Post of Chief Training Organiser** at Krishi Vigyan Kendra, Gossaigaon in the Scale of pay of Rs. 1500-60-1800-100-2000-125/2-2500/- per month plus other allowances as admissible under the University rules.

2. **Two post of Deputy Registrar**, one for Jorhat and one for AAU, Khanapara in the scale of pay of Rs. 1200-50-1300-60-1900/- per month plus other allowances as admissible under the University rules.

3. **One post of Deputy Director (Res.)** Khanapara in the scale of pay of Rs. 1200-50-1300-60-1900/- per month plus other allowances as admissible under the University rules.

Prescribed application form and other details regarding qualifications etc. required for the post may be had by sending self addressed 0.90 paise stamped envelope of the size 23 x 10 cm. from the Deputy Registrar, Assam Agril. University, Khanapara, Guwahati - 22 and from the Deputy Registrar (Personnel) AAU, Jorhat - 13.

The last date of receiving application complete in all respect is **10th June 1987**. The incomplete applications shall not be entertained.

K.N. Chutiya
DEPUTY REGISTRAR (Personnel)

BHARATHIAR UNIVERSITY

COIMBATORE 641046

Advertisement No. E1/12459/86-87

Dated : 18-5-87.

Applications, in the prescribed form, are invited for the following posts in the Bharathiar School of Management and Entrepreneur Development, Bharathiar University, Coimbatore.

Position	*No. of Vacancies*
Professor	4
Reader	4
Lecturer/Research Associate	4
Placement Officer	1

The academic disciplines in which these positions exist are: General Management/Business Policy; Production, Marketing and Financial Management; Quantitative Methods including Statistics and Operations Research;Behavioural Sciences Social Sciences; Economics; and Computers and Information Systems.

Scale of Pay

Professor : Rs. 1500-60-1800-100-2000-125/2-2500.

Reader/Placement Officer : Rs. 1200-50-1300-60-1900.

Lecturer : Rs. 700-40-1100-50-1600.

Research Associate : Consolidated monthly salary of Rs. 1500/-.

Consultancy by faculty members will be permitted subject to University Rules.

The Qualifications and Experience Required in the various positions are given Below:

Professor : A minimum of high second class (55% or above) post-graduate degree or a diploma recognised as equivalent thereto in the concerned or related subject from a reputed Indian or Foreign University/Institute with atleast 10 years of experience in teaching, research and/or in Management out of which not less than five years should be in a cadre not below that of a University Reader or an equivalent position. A Doctorate or an equivalent degree will be an additional qualification;

Reader : A minimum of high second class (55% or above) post-graduate degree or a diploma recognised as equivalent thereto in the concerned or related subject from a reputed Indian or Foreign University/Institute with atleast five years experience in post-graduate teaching, research and/or Management out of which not less than 3 years should be in a cadre not below that of a University Lecturer. A Doctorate or an equivalent degree will be an additional qualification.

Lecturer : A minimum of high second class (55% or above) post-graduate degree or a diploma recognised as equivalent thereto in the concerned or related subject from a reputed Indian or Foreign University/Institute with not less than 2 years of post-graduate teaching/research experience. A Doctorate or an equivalent degree will be an additional qualification.

Research Associate : Same as for Lecturer, but the minimum requirement of 2 years of experience is not essential.

Placement Officer : Same as in the case of Reader. Additionally the candidate must be good at communication skills (both written and oral) and must have an aptitude for counselling the students for career development. Should be able to interact effectively with potential employers of MBA graduates.

Candidates may also be considered for posts other than that for which they have applied if the University considers it necessary.

Application forms can be had from the Registrar, Bharathiar University, Coimbatore - 641 046 on requisition accompanied by a self addressed Rs. 1.40 paise stamped envelope (25 cm x 10 cm). Attested copies of certificates showing qualifications, age experience, etc. should be sent along with the application in the prescribed form (in eight copies) together with Registration fee of Rs. 10/- in the form of crossed Indian Postal Order dated not earlier than **1-5-87** drawn in favour of the Registrar, Bharathiar University, Coimbatore - 641 046.

Candidates in service shall submit their application through proper channel.

Completed applications should reach the Registrar on or before **30-6-87**.

REGISTRAR

TELUGU UNIVERSITY

HYDERABAD

Advertisement No. 2/87

Applications are invited in the Prescribed form for the Post of Assistant Librarian in the University Service, so as to reach the undersigned on or before **15-6-1987**.

1. **Number of Posts :** 3 (One each at Hyderabad, Srisailam and Rajahmundry).
2. **Qualifications :** (a) Good Academic record with at least a high second class Master's degree in a subject other than Library Science.

   (b) Master's Degree in Library Science with first Class or high second class.

   (c) Candidates with service will be preferred.
3. **Scale of Pay :** 700-40-1100-50-1600.
4. **Age :** Should not have completed 35 years.

Note:
- (i) The post is purely temporary and likely to be made permanent.
- (ii) The University reserves the right to fill or not to fill up any of the posts advertised.
- (iii) Relaxation in age to the extent of (5) years shall be granted to the candidates belonging to S.Cs., S.Ts., and B.Cs.
- (iv) Reservations are made for the candidates belonging to S.Cs., S.Ts., and B.Cs., as per Government Rules.
- (v) Those who have previously applied for this post need not apply now.

Application forms together with the qualifications prescribed for the post can be had from the Registrar, Telugu University, Kala Bhavan, Saifabad, Hyderabad - 500 004. on payment of Rs. 5.00 by Demand Draft payable to the Registrar, Telugu University. If application forms are required to be sent by post, a self addressed and stamped (with postage stamps worth Rs. 1.60) envelope of 26 Cms. x 12 Cms. shall also be enclosed to the demand draft.

T.D. Prasada Rao
REGISTRAR

The Modernity of Tradition— Political Development in India

Lloyd I. Rudolph & Susanne Hoeber Rudolph

This is now a classic text in the fields of Sociology and Political Science.

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MADURAI KAMARAJ UNIVERSITY

MADURAI - 625 021

Dated : 16-5-1987

NOTIFICATION : R/16/87

Applications in the prescribed form are invited for the following posts in the University.

1. One Professor in Commerce.
2. Two Readers in Chemistry.
   (i) in Physical Organic Chemistry; &
   (ii) in Terpemoids, alkaloids, Carbohydrates or Polypeptides.
3. Two Reader in Energy.
4. One Reader in Education (Educational Technology/basic degree in Bio-Science.
5. One Reader in Statistics.
6. One Reader in Biology (Tissue Culture).
7. One Lecturer in Genetic Engineering (Molecular Biology).
8. One Lecturer in French (French Translation/Interpretation).
9. One Lecturer in Statistics.
10. One Research Assistant in Medical Sociology.

Scale of Pay

Professor : Rs. 1500-60-1800-100-2000-125/2-2500.

Reader : Rs. 1200-50-1300-60-1900.

Lecturer : Rs. 700-40-1100-50-1600.

Research Assistant : Rs. 600-30-750-35-1100.

Appointment of persons on deputation will also be considered, if the candidates are found suitable and the employer is agreeable to spare the services.

The prescribed form of application and full details regarding qualifications and experience required can be got from the undersigned on requisition accompanied by:

(i) a self-addressed envelope with postage stamps to the value of Rs. 3.80p affixed thereon; and
(ii) a State Bank of India challan for Rs. 10/- (Account No. 1 of the Madurai Kamaraj University) or Demand Draft for Rs. 10/- payable at Madurai, drawn in favour of the REGISTRAR, MADURAI KAMARAJ UNIVERSITY, MADURAI-625 021.

MONEY ORDERS AND POSTAL ORDERS WILL NOT BE ACCEPTED.

Preference would be given to Scheduled Caste/Scheduled Tribe candidates who are considered fit in respect of Lecturers.

The number of the notification should be quoted in the requisition i.e. No. R/16/87.

The last date for receipt of filled in applications is **15TH JUNE 1987**. Applications received after the due date will not be considered.

P. P. Chinnadurai
REGISTRAR

ALIGARH MUSLIM UNIVERSITY

ALIGARH

Advertisement No. 2/87-88

Dated : 1st May, 1987

Applications on the prescribed form are invited for the following posts:

Professors

Scale of Pay : Rs. 1500-60-1800-100-2000-125/2-2500 plus allowances.

1. **Professor of Skin & V.D., Department of Medicine.**

Qualifications : M.D. (Dermatology & Venereology)/M.D. (Medicine) with D.V.D., D.D.

Teaching/Research Experience : As Reader in Venereology and Dermatology for four years in Medical College.

Note: Those candidates who have applied in response to Advertisement No. 19/86-87 dated 17th December, 1986 need not apply again. They will be considered on the basis of their previous applications if eligible.

2. **Professor of Bio-Chemistry, Department of Bio-Chemistry, J.N. Medical College.**

Qualifications

I-Essential : M.D. (Bio-Chemistry)/M.B.B.S. with M.Sc. (Medical Bio-Chemistry)/Ph.D. (Medical Bio-Chemistry)/D.Sc. (Medical Bio-Chemistry).

Teaching/Research Experience : As Reader in Biochemistry for hour years in a Medical College.

NOTE: IF ELIGIBLE CANDIDATES WITH MEDICAL QUALIFICATIONS ARE NOT AVAILABLE OR ARE FOUND UNSUITABLE CANDIDATES WITH PH.D. DEGREE IN BIOCHEMISTRY AND HAVING REQUISITE TEACHING EXPERIENCE MAY ALSO BE CONSIDERED FOR APPOINTMENT.

II-Desirable : The candidate should have notable contributions in the areas of Immunology/Molecular Biology, etc.

Readers

Scale of pay : Rs. 1200-50-1300-60-1900 plus allowances.

3. **Reader in E.N.T., Department of Oto-Rhino-Laryngology.**

Qualifications

I-Essential : M.S. (Oto-Rhino-Larnggology).

Teaching/Research Experience : As Lecturer in Oto-Rhino-Laryngology for five years in a Medical College.

II-Desirable : Published research work.

4. **Reader in Orthopaedics, Department of Orthopaedics Surgery.**

Qualifiations

I-Essential : M.S. (Orthopaedics)/M.Ch. (Orthopaedics).

Teaching/Research Experience : As Lecturer in Orthopaedics for five years in a Medical College.

II-Desirable : (1) Research and Publications. (ii) Experience in Arthroscopy.

Note: Those candidates who have applied in response to Advertisement No. 6/86-87 and 19/86-87 dated 18th June, 1986 and 17th December, 1986 respectively need not apply again. They will be considered on the basis of their previous applications if eligible.

5. **Reader in Neuro-Psychiatry (Temporary) Department of Medicine.**

Qualifications

I-Essential : M.D. (Psychiatry)/M.D. (Psychological Medicine)/M.D. in Medicine with Diploma in Psychological Medicine.

Teaching/Research Experience : As Lecturer in Neuro-Psychiatry for five years in a Medical College.

UNIVERSITY NEWS, MONDAY, JUNE 1, 1987 Regd. No. R.N. 7180/63 Post Regd. D(C) 1086

II-Desirable : Published research work in the speciality.

NOTE: FOR ALL THE POSTS OF READERS

Persons appointed as Lecturer prior to 1982 recommendations, the teaching experience as Registrar and as Lecturer be considered eligible for appointment as Reader.

6. Readers in Mathematics (Temporary) Mathematics Section, Z.H. College of Engineering and Technology.

Qualifications : Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years experience of teaching and/or research provided that atleast three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding record of Teaching/Research.

7. Reader in Electrical Engineering (Instrumentation) University Polytechnic.

8. Reader in Electrical Engineering, Electrical Engineering Section, University Polytechnic.

Qualifications : A good academic record with a Doctor's degree in a relevant field. About five years experience of teaching and/or research and development.

Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order either in the Institution or in an Industry.

OR

In the case of persons to be recruited from Industry or Professional fields, candidates should possess good academic record with recognised professional work of about seven years which should include innovation and/or research and development.

9. Lecturer in Journalism (Hindi).

Scale of pay : Rs. 700-40-1100-50-1600 plus allowances.

Qualifications

I-Essential : Good academic record, with atleast second class Master's degree in the subject (Communication/Mass Communication/Journalism etc.) from an Indian University or an equivalent degree from a foreign University.

OR

Atleast second class (C in the seven point scale) Master's degree in Social Sciences/Sciences/Humanities with atleast a second class Bachelor's degree or Diploma in Journalism from a recognised Indian University/Postgraduate Diploma from a recognised National Institute.

II-Desirable : (i) Teaching experience at College or University level.

(ii) Work experience in any area of mass communication (Newspaper/Magazine, News Agency, Public Relations, Advertising, Radio or T.V. Journalism etc.).

10. Counsellor (Two post) (One-Temp.) Women's College.

Scale of pay : Rs. 700-40-1100-50-1600 plus allowances.

Qualifications

I-Essential : Atleast M. Phil degree in Psychology with consistently good academic record.

II-Desirable : (a) Experience of career Information dissemination, arranging career talks and designing training programmes.

(b) Extensive experience of measuring aptitude, interest and personality.

(c) Research experience in Career Guidance.

(d) Diploma in Guidance and Counselling.

11. Research Associates (Two posts) (Temporary) History Department.

Scale of pay on a fixed honorarium detailed below:

Category	*Value*
'A'	Rs. 1,400/- P.M.
'B'	Rs. 1,600/- ,,
'C'	Rs. 1,800/- ,,
'D'	Rs. 2,000/- ,,

Qualifications

I-Essential : Doctoral degree and independent published work in any field of Medieval Indian History.

II-Desirable : Age below 45 years (For Men) and Age below 55 years (For Women).

12. Research Associate (One post) (Temporary) (Inter-Disciplinary Centre of Development Studies) Faculty of Social Sciences.

Scale of Pay : Rs. 1200/- per month (Fixed).

Qualifications

I-Essential : (a) A Doctor's degree or research work of an equally high standard; and

(b) Good academic record with atleast second class (C in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

II-Desirable : (a) Diploma in Computer Science.

b) Survey research experience.

(c) Ability to interpret statistical data.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class Railway fare only.

Prescribed application forms and instructions may be had from the A.R. (Selection Committees), Registrar's Office, AMU on payment of Rs. 5/- to be deposited in the Cash Section, Finance Office, AMU, either personally or by sending a self-addressed Stamped envelope of 23 x 10 cm.

Last Date for receipt of applications is 10th June, 1987 (during office hours). Incomplete applications and those received late will not be considered.

Jawed Usmani
I.A.S.
REGISTRAR

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429 Telex 31 5578 AIU IN
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

University News

MONDAY, JUNE 15, 1987

Rs. 1.50

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UNIT
3 JUL 1987
T. R. I., MYSORE

MANIPUR UNIVERSITY

SHARING A VISION

—K J Mahale

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BUILDING A UNITED INDIA

—G Parthasarathi's
Convocation Address

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AIU MEETINGS

CLASSIFIED ADVERTISEMENTS

MADURAI KAMARAJ UNIVERSITY

Notification No. R/18/87

The following part-time certificate courses are offered from June 1987 in the CITY COMPLEX OF THE UNIVERSITY in the evenings.

(a) Effective Teaching of English in Primary Schools (Minimum Qualification—a pass in X Standard — 9 Months)

(b) English Proficiency for Competitive Examinations (Minimum Qualification—a degree —4 months)

(c) Effective English Communication for Housewives (Minimum qualification—a pass in X-Standard—3 months).

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Note: The applicant should specifically mention in his/her application as regards post of Asstt. Librarian meant for University P.G. Centre, Solapur.

Dr. B.P. Sabale
REGISTRAR

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Last date for receipt of completed application form is **6-7-1987**.

REGISTRA

UNIVERSITY NEWS

VOL. XXV JUNE 15
No. 24 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor:
SUTINDER SINGH

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Manipur University

SHARING A VISION

K. J. Mahale*

Manipur University is a teaching-cum-affiliating University and has thirty four affiliated colleges including a Medical College, a Teachers Training College, a Law College and an Agricultural College. Besides, fourteen other arts and science colleges are permitted to conduct Pre-University classes in different disciplines. About thirty thousand students are enrolled in the undergraduate courses in several disciplines in the affiliated and permitted colleges. Another 3,000 students at the undergraduate level pursue their studies as private candidates.

With the creation of the Department of Linguistics in 1986-87, the number of postgraduate departments has gone upto fourteen, with a student enrolment of about 800 at the M.A./M. Sc./M. Com. levels and 470 students for M. Phil and Ph.D. courses. Besides, nearly 300 students take the postgraduate examinations as private candidates. Within the course of six years twentythree students have been awarded Ph.D. degrees by the University.

Deploma Courses

In order to meet the needs of the State for trained librarians a one year Degree Course in Library and Information Science was started in 1986. The response to this course has been extremely encouraging. In addition to the M.A., M.Sc., M. Com. and Ph.D. programmes of studies in all the Departments and M. Phil in six Departments, we have introduced one year Postgraduate Diploma Courses in the following subjects, to help the young people of the region to acquire professional knowledge and information and to help them enlarge their scope for jobs and self-employment:

(i) Business Management;
(ii) Banking;
(iii) English Language Teaching and Spoken English;
(iv) Biological Techniques;
(v) Fishery;
(vi) Educational Administration;
(vii) Computer Programming; and
(viii) Labour Law.

Computer Centre

Besides running a one year Diploma Course, the Computer Centre conducts research in the area of Language Processing. The Centre conducts condensed courses in Computer Programming with BASIC/FORTRAN during summer and winter vacations, in which, besides fresh students many in-service personnel from different departments of the Government are admitted to equip themselves with the knowledge and methods of application of new technologies. The Centre intends to introduce degree programmes in this vital and increasingly popular area during the Seventh Five Year Plan period. No such degree course exists, at present, in the entire North Eastern Region. The pioneering role played by the University has proved to be very useful in giving trained personnel to the State of Manipur for modernisation of its administration. In the University, thanks

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**Vice-Chancellor, Manipur University.*
Imphal - 795 003.

to the utilisation of computer services, we have been able to expedite the publication of our examination results, issuing of mark lists to thousands of students, and to facilitate computerisation of general and provident fund accounts. Computerisation of different services in the Central Library has recently been taken up.

Intensive Courses During Vacations

The scheme of six week intensive certificate courses in foreign languages such as, French, German, Spanish, Russian, Chinese, Japanese and Arabic during the summer vacation to enable our students, in particular research students, to have direct access to research materials in world languages and also to enable them avail themselves of the scholarships/fellowships provided under the international cultural agreements are being run. These courses are conducted with the help of teachers from the sister Universities like, Jawaharlal Nehru University, Poona University, Karnatak University, etc.

To cope with the unemployment among the educated youth, the University has decided that during this summer vacation, courses in some more vocational and relevant subjects will be started on experimental basis. A Centre for Developmental Studies has been set up to plan and run these courses.

The Government of Manipur has prescribed M. Phil as minimum qualification for lecturerships in Colleges. The University has started special M. Phil courses for College teachers during the vacations to enable them to improve their academic qualifications and competence.

Civil Services Examination Training Institute

The University has started a training centre to prepare candidates for the various civil services examinations conducted by the State and the Central Government from the year 1985. The intake is composed of candidates of all categories who are given intensive training in selected subjects to help them in preparing for the examinations. Out of the eight students who appeared from the Centre for the preliminary Central Civil Services Examinations, four have been declared successful.

Adult, Continuing and Extension Education

The University has set up a Department of Adult, Continuing and Extension Education sanctioned by the University Grants Commission. The Centre has prepared in Manipuri appropriate teaching materials and aids. The Centre has undertaken several programmes of adult and continuing education at different mofussli and hill areas of the State to help those in need of literacy. A Centre of the Indira Gandhi National Open University has also started functioning in the Manipur University.

Manipuri Encyclopaedia

The University is planning to bring out an Encyclopaedia of Manipur in three volumes comprising entries in Humanities, Social Science and Sciences. The work is in progress and the first volume will be out by February 1988. The Encyclopaedia will contain, besides entries in respect of Manipur, such other important and relevant entries to the entire North East Region. A Steering Committee is looking after the work.

University Museum

The University Museum has started functioning in right earnest. Besides collecting some rare historical objects, it has taken up the work of publications. Its first Bulletin has just been published.

Projects/Seminars/Conferences/Institutes

Almost all the Departments of the University are engaged in teaching and research. They have taken up research projects sponsored by different National and State Government agencies, such as, UGC, DST, ICSSR, ICAR, NEC, Department of Environment, Department of Electronics, etc. Some of the most significant research projects relate to identification of medicinal and herbal plants, indigenous sources of energy, new production techniques in agriculture and horticulture, conservation of forests, exploration of natural oil, gas and minerals, ecological studies of the region, thermoluminescence, studies of gems, solar energy, preservation and publication of ancient Manipuri manuscripts, socio-linguistic survey of dialects of Manipur, demographic, socio-economic problems, regional history, development of fisheries, etc.

The University regularly organises, every year, all India seminars, workshops, refresher courses, etc. All India Guha Research Conference, 1986, Sixth All India Ichthyology Conference, a UGC sponsored Winter Institute in Physics, Seminar on Development of Natural Resources in North East India, DST Seminar for Young Scientists, DST Workshop on Futurology, are some of the examples of such academic meetings at the national level. The University which has been having peace and tranquility for the last three years has thus developed congenial atmosphere for high academic activities and research.

Several of our faculty members were invited/selected to participate in academic and research activities abroad. They actively participated in international, national, state and university level seminars, workshops, congresses, etc, and contributed learned articles.

Besides individual teachers' publications, the University has brought out six books in various disciplines.

Library

The University Library has about 65,000 volumes and subscribes to 600 journals/periodicals annually. The ICSSR has donated a copy each of its publications to the Library. Besides its normal activities, the Library organises from time to time exhibitions on topical subjects. The New Library building which is under construction is expected to be ready for occupation soon.

Co-curricular and Extra-curricular Facilities

A Sports Complex has been started and will be developed fully during the Seventh Five Year Plan period. The Dean of Students Office, the Students' Union and the Sports Department have been extremely active conducting a number of sports events, cultural activities, quiz programmes seminars, debates, etc. The University organized an All India Inter-University Gymnastic championship from December 19-21 1986. The University Sports Teams have won many a laurel in inter-university tournaments. Shri Wahengbam Inaobi Singh and Km. W. Dhaneshori Devi of this University were adjudged the best Gymnasts for their all round performance in this meet. Though at present no auditorium is available, the Recreation Hall is being used by the students for their co-curricular and extra curricular activities. During the academic year 1987-88 the University will host an inter-university cultural meet (youth festival). On that occasion 50 artists from the Soviet Union are scheduled to participate in the festival.

The existing facilities such as Post Office, Canteen, Bank, Book-stall, Health Centre, Drug Store, bus services, etc. have been further developed. The Campus has almost become self-sufficient and enjoys harmonious, cosmopolitan atmosphere, with numerous cultural activities of varied nature.

The meetings of all the Statutory bodies of the University are held regularly to facilitate smooth functioning of the University. The Planning Board, the College Development Council have paid special attention to the planning of higher education in the State and a plan has been evolved for the guidance of the State Government for diversifying the courses of studies in the State. It is hoped that during the course of the next few years higher education in this part of the country will make further progress. Following the guidelines of the UGC the College Development Council of the University takes care of the programme of development of undergraduate courses in the colleges, monitors their progress and achievement after due identification of difficulties faced by them. The University has since decided to grant permanent affiliation to eight more colleges which have completed eight years of existence since the inception of degree courses. Guidelines for the development of undergraduate courses have also been laid down in the Ordinance relating to the affiliation of colleges. In keeping with the education policy

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of the Government of India, a Standing Committee for Autonomous Colleges has been recently created.

During the Seventh Five Year Plan period, the University proposes to consolidate and develop its existing fourteen departments. While Postgraduate classes in Philosophy and Education have already been started, Postgraduate courses in Law, and Medicine will follow soon. With the establishment of the Institute of Electronics and a Centre of Plastics in Imphal, with the help of the Government of India, we shall soon develop university level courses in these areas. With the assistance from the UGC, Department of Electronics, the Ministry of Environment and Forestry, it will be possible to start courses in Performing Arts, Gandhian and Nehru Studies, Electronics, Biochemistry, Biotechnology, etc. Our proposal to start a Tribal Studies Centre is under active consideration of the UGC.

We are aware that the grants given by the UGC and the State Governments to the State Universities in the North Eastern Region are far from adequate for the development of higher education and research on a sound footing. If equal opportunities are to be provided to the students of this part of the country, special attention has to be paid by the authorities concerned to the pattern of financial assistance to the institutions of higher learning. With a view to accelerating the progress of higher education in this Region and also to making fuller use of the existing facilities, we held recently a meeting of the Vice-Chancellors of the Universities and the Heads of Institutions of Higher Learning in the North Eastern Region on May 9, 1987. It was unanimously resolved to request the North Eastern Council to provide in its budget, funds for the development of higher education and research. The funds could be meant for creating a North East Information Centre, for establishing hostels, guest houses in the Universities, for sponsoring research projects, for awarding scholarships, fellowships, to facilitate mobility of students/teachers, for joint publications of books and journals. It is hoped that similar periodical meeting of the Vice-Chancellors, Deans, Heads of Departments and Librarians, from time to time would be very helpful in making fuller utilisation of the existing facilities and also for developing strategies in thrust areas of research.

In order to modernise university administration, it is decided to get its administrative personnel trained. The University had deputed the Deputy Registrar, the Deputy Finance Officer, the Deputy Controller of Examinations and Senior Assistant for training and to keep abreast of the latest trends in University administration and this practice will continue in the future. The Registrar has been able to visit American and British Universities with the assistance of fellowships from USEFI and the Association of Commonwealth Universities. He has returned with new ideas on University administration.

Infrastructure

We hope to expedite the completion of the construction of the Library building, the Humanities block, the Health Centre, the Life Sciences Building, the Administrative Block, the National Institute of Manipuri Studies, the Students' Home-cum-Canteen, the University Guest House, the extension of Men's Hostel, and a building for the Department of Anthropology, a few houses for the faculty and staff members, sports complex, within the Seventh Five Year Plan period. The University is grateful to the Government of Manipur for offering forty quarters in the Langol Hills Complex, which has gone a long way relieving the pressure on the University for accommodation.

It is hoped that by the end of the Seventh Five Year Plan, the University will have attained sufficient growth both in size and depth for playing a dynamic role it is destined to play in the development of the State of Manipur and the North Eastern Region as a whole. ☐

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Building a United India

"The torch of our liberty and national integrity, fuelled by unity in diversity, secularism and balanced development has to be passed on safely from one generation to the next. It is in furthering this vital cause that our universities can make a significant contribution", observed Shri G. Parthasarathi while delivering the Convocation Address at the third convocation of the Manipur University, Imphal. Excerpts:

It was Jawahar Lal Nehru who, many long years ago, lighted the first spark of interest in the rest of the country about Manipur and its people. He was fascinated by a group of Manipuris whom he met, apparently for the first time during a journey through the Surma Valley as far back as in 1937.

The expression that Nehru often used in talking about the people of Manipur was "artistry". In notes that he wrote in the course of a visit here in 1952, he dwelt on the deep impression created in his mind on observing a performance of Manipuri dance. "It was perfect in its artistry and aesthetic content", he wrote. He noted that the Manipuri dancers were professionals who had undergone many long years of hard training. Reflecting on this, Panditji commented and I quote, "No amount of training can give that artistic touch and vitality which I found there, unless the people possess it". He saw a high level of artistry in the textiles and handicrafts of Manipur and felt that they should be encouraged in every way.

Convocation

During the years of the freedom struggle, and all through his tenure as Prime Minister, Panditji was ever conscious of the fact that one of the most important and challenging tasks before the nation would be to foster a feeling of oneness, of unity on the basis of equality and a spirit of understanding among the diverse children of Mother India.

In thinking of the unity of India, Panditji said, "one must always remember that the variety of India has to be maintained because that variety, that diversity of culture, brings about a richness in the cultural inheritance of India". He was emphatic in his belief that the variety, diversity, and distinctiveness among India's many children should be preserved and fostered in the context of the unity of the nation.

The vision that Panditji set forth was shared with equal passion and commitment by Prime Minister Indira Gandhi. She said on one occasion that India was "not a melting pot where ingredients are compelled to lose their identities." In the Indian tradition, she noted, "each has been able to retain its distinctive personality and make a contribution to national life".

Indiraji added: "In a way all the different groups, sections of the population, the different people from the different states of India are like the many-hued, coloured flowers of a very beautiful garland, each flower making its own contribution, in colour, in shape, in beauty, in fragrance. We don't want to change it, but we do want this garland to hold together".

Over the ages, the finest and noblest minds in every part of our country have sought to nurture and propagate such a vision. But they had to contend in their own times with narrow-minded and parochial elements which could not comprehend the grandeur of the vision and, indeed, its indispensability for the security and integrity of the nation, and the prosperity of each of its parts.

Despite weaknesses and aberrations that unfortunately manifest themselves from time to time, the Indian people have succeeded in evolving and sustaining a society in which cultural pluralism is a living, vibrant, and functioning reality.

Speaking in Imphal in 1952, Panditji urged the people to be united, whatever their religion or caste. He added that the lesson Mahatma Gandhi taught us was, "Let everyone remain in his own religion but when there is work to do let us do the work together".

The other major challenge which the nation faces is balanced and equitable and environmentally sustainable development. Here too pluralism within a systemic whole is both necessary and feasible. For a hill State like Manipur, there is particular need to design and implement a distinctive development strategy which optimises the use of your great ecological resources including your rich flora on the one hand, and your human resources with aptitude for new techniques on the other. It seems to me that the elements of such a distinctive strategy must include: new forms of agriculture and horticulture which are knowledge and technology intensive rather than chemical and energy intensive and which permit economically viable settlements in his tracts; conservation and efficient use of rainfall; extensive and intensive use of renewable energy sources; planned use of your extensive forest wealth; the setting up of new pharmaceutical and perfumery industries based on processing of medicinal plants drawing on developments in the new area of Bio-Technology; and industries like Electronics, not needing natural resources, but intensive in skilled human resources and involving products, many of which can be made in the household, small scale and cooperative sectors. A blend of traditional and modern technologies protective of the environment and which places improvement of levels of living and quality of life at the centre of the stage is what is required. This is an endeavour in which a State like Manipur can chart a viable future not only for itself but for much of the North East.

The torch of our liberty and national integrity, fuelled by unity in diversity, secularism and balanced development has to be passed on safely from one generation to the next. It is in furthering this vital cause that our Universities can make a significant contribution. There can be no better role for the young University of Manipur than to strive to become a pace-setter in such a challenging process.

It is the responsibility of all those connected with universities to work together to the very best of their abilities to turn our universities into institutions of excellence. A realistic and purposeful objective for a university will also be to strive for what I may describe as excellence in relevant fields.

The best available advice in Manipur itself, and also elsewhere, may be sought to determine the fields of specialized effort that would be most relevant for the requirements of Manipur as well as of the nation. The University of Manipur is in an advantageous position in proceeding with such an effort because it is a young institution. It must make the best of its youth.

The University is also engaged in promoting scholarship in all aspects of Manipur's history, literature and culture. I was glad to note that the University had organized a major seminar on the sources for the history of Manipur and adjoining areas and that the papers presented in the seminar have been published in a volume. The major recommendations of the seminar pertaining to the collection, preservation, and indexing of old manuscripts and documents, archaelogical explorations and excavations, the establishment of a museum of natural and cultural history, and the production of a comprehensive work on the History of Manipur, call for effective follow-up action by the University.

I am sure that the scholars who will be involved in the writing of the history of Manipur will seek to place it in the context of the social, cultural, economic, and political development of the Indian people as a whole. This will result in a constructive contribution to knowledge, as also to the fostering of national, supraregional consciousness, and emotional integration.

I am not suggesting such an approach only in respect of the writing of the history of Manipur. My point is that the promotion of awareness of the total Indian heritage should be a key objective of education in our country.

The literacy rate in Manipur is higher than the national literacy rate, but much more remains to be done in this field. The eradication of illiteracy is a very important national goal and is intimately connected with our social and economic progress. It is heartening that the University of Manipur has created a separate Department to promote adult literacy, along with more conventional programmes of continuing education and extension activities.

The University's programme appears to be an innovative one, resting on the mobilization of community support and enlistment of volunteer workers to serve the cause. By making the effort for a people's programme and by bringing about the active participation of teacher and student volunteers, the University is seeking to place itself at the vanguard of the movement for the rapid development of Manipur's human resources. The process of this movement is a good example for universities in the rest of the country to follow.

The students of the University who involve themselves in the adult literacy campaign will actually be educating themselves in citizenship and service to their fellow citizens. Education should have some higher aims, apart from imparting of knowledge in chosen subjects. It is the task of educationists to guide us on how formal education can be enriched and made more meaningful by also serving as education for citizenship and education for living.

I have been of the view for some time that consideration needs to be given by our universities to the formulation and introduction of a course, involving various disciplines, covering the development of human values the world over, with special reference to India. I made the suggestion a few weeks ago in a university in the southern part of India. I submitted the thought that such a course could cover the contributions by various religions, by outstanding thinkers, by Marxism and the different schools of socialist and libertarian thought, as well as by modern science. The findings of modern science too are supportive of concepts of humankind's oneness and of the ecological relatedness of all life on earth. ☐

AIU Meetings at Manipur University

A series of meetings of the Association of Indian Universities are to be held at Manipur University, Imphal on 17th and 18th June, 1987. The Equivalence Committee and the Cultural Committee will meet on 17th June followed by the Sports Committee and Standing Committee on 18th June. The Standing Committee has a number of important issues to deliberate on. It will have for its consideration requests received from the Ministry of Human Resource Development and Pandit Govind Vallabh Pant Birth Centenary Celebrations National Committee regarding establishment of Chairs in the name of Pandit Pant in the Universities. Pandit Pant had made significant contribution in the freedom struggle, in shaping the policies of the Congress, abolition of Zamindari, upliftment of Harijans and the downtrodden, in National Integration and Public Administration. The Chairs should be created in appropriate disciplines to perpetuate the memory of Pandit Pant.

Another item that will come up before the Committee pertains to the method of nomination of Indian representatives on ACU Council. There is a proposal that to effect continuity, it would be better if term of Indian members is raised from one year to two years and every year two new members may be nominated on the basis of seniority. The Standing Committee will also have for its consideration a proposal from Prof. P.N. Srivastava, former Vice Chancellor, JNU (*now* Member, Planning Commission) to start University Book Shops on the University Campuses. A proposal to grant terminal benefits to retired Vice-Chancellors at par with judges and other public servants is also likely to be come up for discussion. The Committee will also have for its consideration a proposal from Delhi University regarding exemption of tuition fee to University Karamcharis purusing higher studies from other universities on reciprocal basis. The Standing Committee will also deliberate on the requests of Dr. Y.S. Parmar University of Horticulture and Forestry, Solan (Himachal Pradesh) for grant of provisional membership of AIU. The question of extension of provisional membership to the following universities for a further period of two years will also be taken up:

Andhra Pradesh Open University, Hyderabad;

Bharathidasan University, Tiruchirapalli;

Birsa Agircultural University, Ranchi;

Gandhiji University, Kottayam;

Indira Kala Sangeet Vishwavidyalaya, Khairagarh;

Jamia Millia Islamia, New Delhi;

Orissa University of Agriculture and Technology, Bhubaneswar;

Tamil University, Thanjavur;

Vidyasagar University, Midnapore.

The Standing Committee will also receive reports of its Visiting Committees for the regular membership of the Haryana Agricultural University, Mangalore University and Acharya Narendra Deva University of Agriculture and Technology, Faizabad. The Standing Committee, to be presided over by Prof. G. Ram Reddy, Vice-Chancellor, Indira Gandhi National Open University is likely to be attended by Dr. P.V. Salvi, VC, Konkan Krishi Vidyapeeth and Vice-President, AIU; Prof. Ramesh Mohan, VC, Meerut University; Dr. Sukhdev Singh, VC, PAU, Ludhiana; Dr. V.D. Gupta, VC, Gorakhpur University; Dr. V.C. Kulandaiswamy, VC, Anna University; Prof. M. Abel, VC, Sri Krishnadevaraya University; Dr. S. Krishnaswamy, VC, Madurai Kamaraj University; Prof. Ramaranjan Mukherji, VC, Rabindra Bharati; Prof. K.K. Dave, VC, Dr. HS Gour Vishwavidyalaya; Dr. H.P. Dikshit, VC, Rani Durgavati Vishwavidyalaya; Prof. K.N. Shah, VC, Saurashtra University; Dr. K.B. Powar, VC, Shivaji University; Prof. Ramlal Parikh, VC, Gujarat Vidyapeeth; Prof. T. Navaneeth Rao, VC, Osmania University; Prof. B.H. Rajurkar, VC, Marathwada University; Shri L.D. Kataria, VC, HAU, Hisar; and Dr. S.N. Saraf, VC, Sri Sathya Sai Institute.

The Cultural Committee will, among other things, finalise the dates and venues for the zonal youth festivals and youth programmes for the session 1987-88 in terms of a request from the Department of Youth Affairs and Sports, Government of India to organise four Inter-University Zonal Youth Festivals and Youth Programmes at different universities involving participation of 500 Russian Youth during Festival of USSR in India. It will also have for its consideration the offers received from universities for allotment of Inter-University National Youth Festival for the year 1987-88. It will be pertinent here to report that the Department of Youth Affairs and Sports, Government of India, has approved financial assistance for organising four Inter-University Zonal Youth Festivals, one National Youth Festival and sponsoring 50 University Choirs and 50 University Orchestra for the year 1987-88.

Amongst the proposals for recognition of Equivalence likely to come up before the Equivalence

Committee are the question of parity of Bachelor of Sports, Humanities and Physical Education degree of Haryana Agricultural University; parity of 1 to 2 years M.P. Ed/M.P.E./M.A., M.Sc. (Phys. Edn) degree programme conducted at Indian Universities; parity of B.P. Ed. (Bifocal) degree of Amravati University with B.Ed. programme at other universities and the question of equivalence of multi disciplinary courses. The question of equivalence of a number of foreign degrees will also to be taken up for discussion. The Committee will also receive a report on the status of degrees awarded by accredited institutions in USA from Shri K.C. Kalra, Dy. Secretary, AIU, who had visited universities/higher educational institutions in the USA on Fulbright Educational Administrators programme.

The Sports Committee will receive reports of the Committees constituted by the Chairman regarding Selection and Training of Indian Universities' Contingent for the Zagreb Universiade, 1987, and allotment of University Level Coaching Camps for the year 1987-88. The revised criteria for the award of Maulana Abul Kalam Azad Trophy as proposed by the Department of Youth Affairs and Sports, Govt. of India, is likely to come up for discussion. The Committee will also have for its consideration, proposals for inclusion of Netball, Yoga, Archery, 5000 and 10,000 metres Run (for women), Rowing (for women), Power Lifting, Tenni-Koit and Judo in the schedule of Inter-University Tournaments received from the national federations and member universities. The Committee will also receive a report from Shri G.S. Sivia, Dy. Secretary (Sports) in the AIU on his visit to Pakistan at the invitation of University Grants Commission of Pakistan. Shri Sivia delivered a series of lectures on Physical Education and Sports at the Masters' Trainers Course held at Rawalpindi. Recommendations of the National Seminar on Physical Fitness and Sports Planning in Indian Universities held on 9th and 10th May, 1987 at Sukhadia University, Udaipur will also come up for consideration and adoption. ☐

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EDUCATED UNEMPLOYMENT
CAUSES AND REMEDIES

N. Pradhan*

Introduction

Educated unemployment is not a new problem in India. Long before independence, official committees drew attention to the phenomena of unemployment. Although since 1947, the Indian economy has been growing more rapidly than ever before, educated unemployment has not diminished. On the contrary, there is evidence that it has remained a more or less constant proportion of the rapidly growing stock of the educated labour force. Comparing the 1961 and 1981 educated unemployment, the document Challenge of Education : A Policy Perspective, (Ministry of Education, Govt. of India, New Delhi, 1985) mentioned that in 1961 matriculates formed three-fourths of the total educated unemployed but their share declined by 1981 to 55%. The share of those who have passed graduation or more doubled i.e. from 9.5% to 18.7% during 1961-81. The Planning Commission (Govt. of India 1985) on the basis of NSS data estimated that the total unemployment among the educated as well as uneducated in the country has gone upto 20 million and almost half of them are educated. Further, it has estimated that 3.47 million unemployed are above matriculates. This 3.47 million highly educated unemployed are very precious. In a social system like ours, too much social value is placed on the level of education and hence the parents spend too much for the education of their children because it helps the family in its upward mobility. So without considering vocational or any technical course for early employment, the students go in for higher studies. This phenomenon in turn resulted in (i) mass unemployment, (ii) poverty of the family, (iii) frustration and discontentment, (iv) fall in the wage rate, (v) devaluation of university degrees in the job-market, (vi) brain drain, and ultimately, poverty of the nation and political destability. So, if we want to eradicate poverty of our nation, every one should be properly employed. To achieve this goal, first priority should be given to the eradication of educated unemployment problem. But, unfortunately, in none of the plans, this problem has been given the top priority and it seems that the planners and politicians have not realised the danger the nation faced from the explosive character of the ever increasing army of educated unemployed. Taking into consideration the gravity of the problem, an attempt has been made to explain its possible causes and the remedies for it.

Causes of Unemployment

The causes of educated unemployment lie not only in the education system but in the interplay of very many factors in and out of the education system. Some of the causes are explained here as follows:

The education system is such that two-third of its products are in general education and only one-third belong to technical and professional education. So two-third of our university products do not have the skills required today. Our universities are mainly producing clerks. It is the British system of education that still persists with the objective to produce people who can only help in administration i.e., mainly clerks and translators. As a result every year we are producing lakhs of unemployable graduates and add to the problem of unemployment.

The expansion of higher education in India has been phenomenal. At the time of independence there were 2.6 lakhs of students in 19 universities but now there are 33.5 lakhs of students in 140 universities and 5500 colleges. The average growth rate is 12% per year. But compared with the 3% growth rate of our economy, and 2% growth rate of employment, the rate of higher education growth is too large. In addition to this the rate of growth of higher education within the system of education is very high. Moreover, the rate of growth of employment has been below that of the growth of population, GNP, rate of industrialization or any other economic variable.

In the system of higher education, the Arts, Science and Commerce courses are less time consuming and less expensive in comparison to other technical and vocational courses. In the liberal education, the students can earn and learn. So a large majority pursue these courses just for social status. Secondly, there are very many methods today like

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Centre of Advanced Study in Education, M.S. University of Baroda, Baroda.

correspondence education, and continuing and extension education which are offering education. So it is possible for everyone to pursue higher education that adds fuel to the burning unemployment problem.

Indian education system is not based on any manpower planning. It has expanded more in order to fulfil the aspirations and demands of the people who were earlier left out or felt that education is an important instrument for economic betterment. The education system is such that anybody who can afford to stay can get into any higher educational institution and be educated. It is because our education system is not based on any demand--supply model. As a result the gap between demand and supply has increased in course of time. The lack of balance in demand and supply is more due to lack of limited job opportunities and unemployable graduates.

Economic development of a nation is the most important factor to reduce unemployment. But our rate of economic development is hardly 3% and that too concentrated more in urban areas than the rural areas. So lot of job-opportunities are coming up in urban areas. It is because all the five year plans have given less emphasis to rural development in comparison to urban development. Hence the rural youth educated unemployment problem.

India, at present, is having over seven thousand highly capital intensive collaboration agreements with companies from foreign countries. It is depending upon imported technology and is not fully independent. It has also not developed its own autonomous technological framework at various levels and has not integrated agriculture with different levels of technology. So the demand of educated labour force has become anachronic.

Population growth is a crucial problem in most of the developing countries. It is at the root of poverty and unemployment. The annual growth rate of population in India is 2.4% and out of its total population (72 crores), 40% are below the age of 15 years who are going to enter the job market very soon and swell the problem of unemployment if no proper plan is designed to tackle it. In the age group of 15-29, who are most productive and potential i.e., matriculates and above, is about 38.2% out of the total. The main reason for this magnitude of unemployment is the population growth.

There is a great disparity in the jobs required and jobs created. So without getting any job, the students go on furthering the problem of unemployment by pursuing further education. As a result the highly educated personnel go in for job where actually low educational level than their acquired degree is required. A large number of people are thus underemployed and the employers also prefer these personnel for less pay. Hence, the graduates of today are earning much less than the graduates of a decade back. Though there is devaluation of degrees, the students are going for higher education because of the following reasons: (i) social status attached to education by Indian society, (ii) students usually have nothing to do immediately after completion of studies, (iii) positive relation between education and earning, (iv) apathy towards manual labour of the educated people, (v) no interest for self-employment. Because of these factors the students go on pursuing higher education and ultimately they add to the bulk of the unemployed.

Another very important cause of unemployment is the out-dated syllabus. Even if we believe that the quantum of knowledge is double today than what it was a decade or so back, practically our syllabi in colleges and universities are not in consonance with the changed and increased knowledge in different disciplines. So after the completion of studies the students are practically not fit for the posts which are related to their subjects and become unemployable. Moreover the industries and our universities are not in the same platform to orient the students and students do not know where they will go after the completion of their course.

Remedial Measures

But how to overcome this problem is very important for a developing country like ours. To overcome this problem efforts can be made at the individual, institutional and national level. Of course all these three levels are interdependent.

(a) Individual Level

Most of the Indian students are interested to enter white collar jobs and do not have healthy attitude towards manual work and dignity of labour. So after the completion of education the students go on trying for a white collar job rather than taking up any manual job even with attractive salary. The students should have healthy attitude towards manual work and dignity of labour. They should know about their potentialities and interest, according to which their future career should be properly planned. It is essential that the students should know about the various jobs and the courses of study related to various jobs. Besides, the students should develop a spirit of self-dependence and plan for self-employment rather than aspiring for any white collar job. Of course to develop an attitude, planning the career and inculcating the values in students, the parents, institutions and the nation itself has a role to play.

(b) Institutional Level

To make the education related to the job, the curricula has to be modified on the basis of developed knowledge and the needs of industrial development, specially of the locality. There are also certain other subject areas in which new curricula are to be developed to fit our manpower in those fields. To place the students properly in different courses, there should be proper screening at the time of admission. Admission to the students should be given on the basis of their potentialities, interest and the manpower requirements. It can be done by having some testing programme at the beginning of each academic session for the new entrants. There should also be an employment bureau in every university and college to provide necessary information to students and help in their placement. Besides, the teaching departments and industries should co-operate and training should be given to the students on-the-field like that in USSR. The industries should also inform the educational institutions the type of manpower required by them.

(c) National Level

First of all, there should be proper educational planning at the national level. For this the quantity and type of manpower required in every field of work should be predicted and the backlog or balanced manpower in different fields should be estimated. Liberal education should also be restricted and suitable vocational courses should be started. An extension education department in all the higher educational institutions should be started to take care of the local needs and frame curricula, impart education to the educated to make them employable. The government shall also make ample financial provisions for the educated who want to be self-employed by starting an industry or farm. More importance should be given to agricultural education and it should be expanded i.e. the number of agricultural universities should be increased and established in the rural areas for the educated rural youth. These universities should be based on the needs and environment of that locality.

Today in India, though we have large number of industries, they are concentrated in urban areas and certain regions of the country. These industries are mainly capital intensive rather than labour intensive. So what is required is that according to the availability of natural resources and agricultural production, the rural areas should be industrialized. The new idea of delinking degrees from jobs is also sound one. It will bring down the rush for higher education. The potentialities which are required for different jobs should be specified and the employers should select personnel and impart the necessary skills on the job. Of course, this practice is in operation in some of the organisations like Banks. The task before the nation is to identify the required potentialities and develop certain devices to select the proper personnel for the job. It should be practised not only in public sector but also forced on the private sector.

Another important measure to tackle the unemployment problem is to control our population growth. Majority of our people are in the age group of 15-30 and a large chunk of them are unemployed. Besides, a large majority will enter the job-market very soon. So when these people are not provided with proper employment, the situation of those entering the job-market will be very worse, unless planned measures are not taken at the national level.

To remove the unemployment the education system has a great role to play. In this regard planning has to be made from individual to national level and it requires dedication by all. In correspondence with the individual and societal needs, the education system has to change. Moreover labour intensive rather than capital intensive technology is required for the removal of this problem in our country. □

CALENDAR OF EVENTS

Insertions for our column, Calendar of Events, are welcome. It will help early reporting of the event as also avoid unnecessary correspondence if the matter for insertion is submitted in our usual format under the heads: proposed dates of the event, title, objective, name of the organising department and name of the Organising Secretary/Officer to be contacted.

Public Relations in University Management

Scope & Limitations

R. K. Kaushal*

Public Relations as defined by Rober D. Ross, is an activity which aims at helping the organisation obtain and maintain a social environment in which it can work and flourish. Like any other social welfare organisation, an institution of higher learning also exists by public consent and its existence is justified only in terms of its contribution to the public concerned as viewed by them. Public Relations has, therefore, to be recognised as a most important consideration in the management of university affairs. It has to be seen as an aid for good performance and an investment in the privilege to function.

Social environment is made up of attitudes and reactions of the public concerned—the inter-relationship between the organisation and the public like the parents, students, teachers and non-teaching employees on the one hand and the State Government, the UGC and the other university authorities on the other.

By attitudes we mean emotional feelings of individuals towards issues, situations or an incident. Expression of an attitude makes for a public opinion. By public we mean a group of people with some kind of common interest. Attitudes are determined by self interest. Once self interest is aroused, it becomes difficult to change the attitude. People are influenced more by their emotions rather than by facts, which are viewed only in light of experiences and wishes of people in a democratic society. At best, the facts are therefore, opinions only. People ignore ideas, opinions and viewpoints unless they affect them personally in some way.

Environment is the result of management's decisions, indecisions, actions or inactions. For obtaining a good environment it is necessary to ensure that whatever the university does or fails to do, says or fails to say, does not harm the society in any way. The key role of university public relations lies in guiding the decisions and actions of the university to ensure that they are in public interest. In considering public interest, one of the main concerns is ethics. Ethics is the discipline which deals with good or bad and with moral duty and obligations. The success of university-public relations would depend upon publicly acknowledged and appreciated good performance of the university. Public Relations is never a substitute for good performance.

Public Relations is a concept which has been generally misunderstood in India. It is confused with publicity, propaganda, news reporting, information, communication, image boosting or an attempt to sell appearances instead of substance. Public Relations is all these and much more, as would be clear from what has been precisely pointed out in the foregoing paragraphs.

Public Relations activity in universities is concerned with interpreting the programmes and policies of the university keeping in view the interest of the students, the teachers and the employees as also to guide the authorities to reshape its programmes in view of the public reaction or opinion. The role of Public Relations in decision-making has unfortunately not at all been appreciated in university circles. Unless this function of Public Relations is appreciated in right perspective, universities will utterly fail in deriving proper benefit from this activity, which is recognised as the most effective modern technique of management in advanced countries of the world.

Generally a Public Relations Officer (PRO) in a university is considered to be a news reporter only or at times a receptionist at the most. It is he who is blamed when a criticism of some action of the university appears in a newspaper. It is he who is blamed when an agitation erupts on the campus. It is he who is never taken into confidence. The proposals, decisions and actions which affect the students, the teachers, the employees and the relation of the university with the Government and the UGC are generally kept a secret from him, who in outer circles is recognised as the spokesman of the university. Clearly this reflects a misunderstanding of the concept of Public Relations. The problems of the universities have to be analysed in view of the modern techniques of management and Public Relations has to be given its due place, if these are to be better managed.

A University PRO must have the responsibility for contribution to the performance and results in different spheres of functioning of the university. His role in maintaining liaison with the press or mass media has been appreciated to some extent. But his role in maintaining liaison with the Government and the UGC and other organisations is yet to be recognised. To make his performance really effective, he will have to be taken into confidence in taking decisions on matters of significance in the interest of the university and the public concerned. He must have his say in university affairs if he has to be its spokesman in the real sense. A half hearted approach in adopting public relations activity will not pay dividends. An approach based on misconception will end in futility. It is time therefore, that the concept of Public Relations in universities is realised and understood in a proper perspective and utilised to its optimum in improving the functioning of universities to the satisfaction of all concerned. □

**Public Relations Officer, Himachal Pradesh University, Shimla* - 171 005.

Workshop on Information Management Technology

A twelve-day Workshop on Information Management Technology organised by the Indian Association of Special Libraries and Information Centres (IASLIC) and Micrographic Congress of India (MCI) was held at IIT, Bombay. The workshop was inaugurated by Dr. S. Ramani, Director, National Centre for Software Technology, Bombay, on 1st June 1987.

Sponsored by the Department of Scientific and Industrial Research, Govt. of India, under the Human (Professional) Resource Development Programme of NISSAT, the Workshop discussed in several sessions the latest systems, processes, techniques, materials and equipment in information management technologies to suit the requirements of different organisations.

Over 30 delegates from Universities, CSIR Laboratories, Defence Organisations, ICAR and ICMR participated in the workshop.

Centre of Excellence in Commerce

The Department of Commerce of the Banaras Hindu University has been recognised as "Centre of Excellence" by the University Grants Commission under its Special Assistance Programme. This has been done on the recommendations of an expert committee constituted by the U.G.C. which also recommended Corporate Studies, Banking and Insurance and Business Finance as thrust areas of the Programme. Apart from faculty positions, national scholarship, two JRFs and staff for clerical assistance, the UGC has also sanctioned a non-recurring grant of Rs. 8 lakh for books, journals, equipments and building.

NSS Training & Orientation Centre

Dr. Bhagat Singh, Vice-Chancellor, Punjabi University, said that the University would provide sufficient facilities for the development of N.S.S. Training and Orientation Centre and the NSS activities. The university would engage national volunteers for disseminating the NSS programmes in the rural areas. The university has also decided to conduct two training and two refresher courses for the NSS programme officers every year. Dr. Singh was presiding over a meeting of the Advisory Committee of Training and Orientation Centre (NSS). Brig. N.S. Sandhu, Director, Youth Services, Punjab also attended

The University has set up a committee under the chairmanship of Dr. B.S. Grewal, Dean, Students Welfare for providing more facilities to the NSS Training and Orientation Centre.

MIER Recognised as Centre for Research

The Model Institute of Education and Research (MIER), Jammu, has been recognised by the Kurukshetra University as an approved centre for Ph.D. research in the Faculty of Education. This has been done in recognition of the significant research work undertaken by the Institute in field of education. Necessary modifications in this regard have been made in the University Ordinance. This facility would enable the research scholars to pursue their studies at the MIER and get themselves registered for Ph.D. degree at Kurukshetra University.

Review Committee for Delhi Colleges

The University Grants Commission (UGC) has appointed a 10-member Committee headed by Professor Rais Ahmed, former Vice-Chairman, UGC, to review introduction of new courses at degree level and pattern of postgraduate teaching in colleges of Delhi University. Professor Monis Raza, Vice-Chancellor, Delhi University, Professor Ramaranjan Mukherjee, Vice-Chancellor, Rabindra Bharati University, Professor, A. Gnanam, Vice-Chancellor, Bharathidasan University, Professor (Mrs.) Archna Sharma, Member, UGC and Prof. Kulwant Madan, Director, Planning and Monitoring, Punjabi University, are the other members of the committee.

Summer School on Reliability Engineering

The Department of Mathematics of the Indian Institute of Technology, Bombay, organised a Summer School on Reliability Engineering. The objective of this programme was to expose faculty members from various engineering colleges in the country to the principles and application of Reliability Engineering.

Sponsored by the Indian Society of Technical Education (ISTE), the programme was attended by 30 participants. Over 50 lectures on various aspects of Reliability Engineering were delivered by the Faculty drawn from various departments of the Institute and the B.A.R.C., Bombay.

Rohilkhand Varsity Introduces 3-Year Degree Course

The Rohilkhand University is reported to have decided to introduce a 3-year degree course in all its affiliated Colleges from the current academic session. The first year syllabus of the 2-year course would remain the same for the three-year degree course. The syllabus for the second and third year would be announced later.

News from Agril. Varsities

India's First Tree Germ-Plasm Bank

Dr. Maheswar Dayal, Secretary, Department of Non-Conventional Energy Sources inaugurated India's first tree germ-plasm bank at the Haryana Agricultural University, Hisar, recently.

This tree germ-plasm bank, sprawling over an area of 100 acres would have about 4,000 multipurpose species of shrubs and trees collected from various parts of the country. Material will also be collected from Africa, Australia, Gulf and South American countries. Majority of these trees to be collected are on the endangered list and may become extinct if not preserved systematically.

Mr. L.D. Kataria, Vice-Chancellor of HAU said the Department of Non-Conventional Energy Sourses has given a grant of Rs. 8.75 lakh for the project. He said it would be the only bank to represent an exhaustive tree collection from arid and semi-arid zones.

Mr. Kataria said the HAU had been chosen for this project due to its proximity to the state forestry department which has already collected about 1,000 woody species for the bank. They include, 84 vaxeles soobabul, 110 clones of poplar, 32 eucalyptus, and 110 Keekar.

Dr. O.P. Toky, Head of the Department of Forestry, said the bank would help in disseminating knowledge of trees to the common man. It will also provide information about the most suitable plant for a particular area.

This apart, the bank would act as a reservoir of valuable heritable germplasm potential important in breeding of new varieties.

Dr. Toky said the germ-plasm bank would help in preserving many varieties of trees.

Wheat Centre for PAU

The Union Ministry of Agriculture has decided to set up an advanced centre of training in wheat production technology at Punjab Agricultural University, Ludhiana. To be funded by the World Bank, the Centre would run training courses relating to wheat production technology for subject matter specialists, senior officers dealing with wheat production at various levels and field level functionaries from all over the country. Specialised training programmes in breeding soils, agronomy, plant protection, seed prosecution, engineering quality control, post-harvest technology and economics would also be run under the project.

Dr. Kbem Singh Gill, Director of Extension, said that the university had been chosen for the project as it had established excellence in wheat research and technology which have made an unprecedented impact on wheat production in Punjab.

The university has also been sanctioned a new PL-480 project entitled "genetic evaluation and utilisation of wheat germplasm for breeding varieties resistant to Karnal bunt." A provision of Rs. 17.75 lakh has been made for this three-year project. The project would strengthen facilities for development varieties resistant to Karnal bunt and would be of immense scientific and practical utility both on short-term and long-term basis.

Nutritive Evaluation of Forages

A team of scientists at the Haryana Agricultural University (HAU) have done outstanding research in the discipline of animal nutrition with particular reference to the modification, standardization and evolving chemical and biological techniques for nutritive evaluation of forages. The digestion techniques for evaluating the precise and accurate nutritive value of forages for animals have been standardised. Now it can be done with precision and accuracy at less cost and within a shorter time.

These techniques will be of immense interest to researchers engaged in the nutritive evaluation of Indian forages. A significant use of this research to the farmer would be to inform him about the specific nutritive quality of different Indian forages. The research has given a new dimension to forage breeding programmes. Earlier the emphasis was on higher yield, now it will be also on higher yield of nutrients.

The team consists of Dr. K. Pradhan, Professor of Animal Nutrition, and his two associates Dr. S.K. Bhatia and Dr. N. Krishna and has been chosen by the Indian Council of Agricultural Research for the award of Rafi Ahmed Kidwai Memorial Prizes for the biennium 1984-85. The award carries a medal, a citation, besides a cash prize of Rs 10,000.

News from UGC

INSAT-1B Programme of UGC

Between 15th and 22nd June, 1987 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

15-6-87

"Lord Kelvin's Clock"
"The Science of Parapsychology I"

16-6-87

"Livestock Farming-II"
"Ecosystem in India: Ecomechanics-B"
"Cocoa Cultivation"

17-6-87

"Social Insects: Ants-Biology and Social Organisation"
"Science: A Women's Work Image Associates"
"Images"

18-6-87

"In Search of the Past-VII: The Roman Empire"
"The Body Clock"
"Time Present Time Past"

19-6-87

"NASA At work-VII: Space Telescope and Spacelab"
"White Dwarfs to Black Holes"

20-6-87

"Techniques in Genetic Engg. DNA Sequencing Using M 13"
"Archery-II"

21-6-87 (Sunday)

No Telecast

22-6-87

"The Wave: Particle Paradox"
"The Science of Parapsychology"
"Graphic Perspectives"

Sports News

Centre of Excellence for Sports

A Centre of Excellence for Sports would be established under the Indo-USSR Joint Cultural Cooperation at the Netaji Subash National Institute of Sports (NS NIS), Bangalore. Both the countries are reported to have finalised the Rs. 10.5 crore project and the protocol is likely to be signed when the Indian delegation led by Mrs. Margaret Alva, Union Minister of State for Sports, visits Moscow by the end of this month. Sophisticated sports equipment for the Centre are also expected to be received soon from the USSR.

News from Abroad

The Microscale

Three Professors of Bowdoin College and Merrimack College USA, have developed a programme to improve the air quality in the chemistry labs. Called "Microscale"—because it dramatically reduces the scale of chemical experiments—the technique uses test tubes the size of a baby's finger and 100 to 1,000 times less chemical amounts than in conventional experiments.

The technique, which was started as an experiment six years ago, has grown from usage by about 350 students at 10 colleges in 1985 to about 3,000 students at 60 institutions. It is estimated by the next autumn semester, about 10,000 students at 100 colleges would be using this technique in the campus laboratories.

The microscale approach has caught on rapidly because it reduces the threat of explosion and improves air quality. The technique also allows students to perform more experiments at less cost than older methods. And because it takes less time to produce specific reactions with tiny quantities of chemicals, students can learn more in a shorter period of time.

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
July 3-4, 1987	National Symposium on Development of India's Mineral & Fuel Resources	To discuss the entire spectrum of mineral sector—metallic and non-metallic minerals, coal, ground water, oil and natural gas.	Department of Applied Geology, Indian School of Mines, Dhanbad.	Prof. K.L. Rai, Convenor, Diamond Jubilee National Symposium, Department of Applied Geology, Indian School of Mines, Dhanbad - 826004.
July 17-20, 1987	Seminar on Undergraduate Curriculum and Social Relevance need for Community Colleges	To discuss all aspects of undergraduate education with reference to community needs	Association of Indian Universities in collaboration with Gujarat Vidyapith.	The Organising Secretary C/o Gujarat Vidyapith, Ahmedabad 380014
July 22-24, 1987	15th National Conference on Fluid Mechanics and Fluid Power	To bring together researchers and designers, working in diverse fields like Mechanical, Civil, Power, Aeronautical and Chemical Engg. besides Mathematics and Physics to review the state of the art and the recent developments.	Regional Engineering College, Srinagar in collaboration with National Society of Fluid Mechanics and Fluid Power.	Dr. A.M. Bhat, Organising Secretary, 15th National Conference on Fluid Mechanics and Fluid Power, Department of Mechanical Engineering, Regional Engineering College, Srinagar 190 006.
November 16-20, 1987	Seventh National Symposium on Radiation Physics	To provide a forum for a collective discussion and identification of the emerging new directions in the field of Radiation Physics	Department of Physics, Mangalore University in collaboration with the Indian Society for Radiation Physics	Dr. N. Lingappa, Convenor, Programme Committee, NSRP-7 and Head, Department of Physics, Mangalore University, Mangalore.
November 19-21, 1987	Eighth Maharashtra Political Science Conference.	Main topics proposed to be discussed are: (1) National-Integration; (2) Politics of Education; (3) Politics of World Peace; (4) Politics of Terrorism.	Nutan Mahavidyalaya, Sailu.	Sh. D.R. Kulkarni, Principal, Nutan Mahavidyalaya, Sailu - 431503 Dist. Parbhani. (Maharashtra).
November 26-28, 1987	**International Seminar on Instrumental Methods of Electro-Analytical Techniques.**	**To provide a forum to research workers and practitioners for exchange of information and technical perceptions in instrumental methods of electroanalysis.**	**Indian Institute of Science, Bangalore.**	**Prof. M.H. Dhananjaya Principal and Chairman of the Organising Committee, S.J. College of Engg., Mysore.**
December 7-11, 1987	Seventh Triennial International Conference on Thin Films. (ICTF-7)	To take stock of recent progress in the field of science, technology and applications of their films.	Indian Institute of Technology, New Delhi, in collaboration with IUVSTA Thin Film Division and Indian Vacuum Society.	**Dr. Lalit Malhotra, Secretary, ICTF-7, Thin Film Laboratory, Deptt. of Physics, Indian Institute of Technology, New Delhi-110016.**
December 16-18, 1987	International Symposium on Electronic Devices, Circuits and Systems	To provide a forum to research workers all over the world for exchange of information and technical perceptions in electronic devices, circuits and systems.	Indian Institute of Technology, Kharagpur	**Prof. N. B. Chakravarti, Department of Electronics and Electrical Communication Engineering, Indian Institute of Technology, Kharagpur - 721302**

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles culled from Periodicals received in AIU Library during May, 1987.

EDUCATIONAL PHILOSOPHY

Bollnow, H.C.O.F. Main directions of education. *Universites* 28(4), 1986, 243-52.

Coleman, James S. The idea of the developmental university. *Minerva* 24(4), 1986, 476-94.

Toole, William B. The usefulness of useless knowledge: A perspective for the 1980s. *Ednl Record* 68(1), 1987, 26-31.

Vosniadou, Stella and Brewer, William F. Theories of knowledge restructuring in development. *Rev Ednl Res* 57(1), 1987, 51-68.

EDUCATIONAL SOCIOLOGY

Istance, David and Chapman, Jillian. Priority for educational equality. *OECD Observer* (141), 1986, 17-9.

SOME REFLECTIONS on universities after the disturbances at the end of the 1960s. *Minerva* 24(1), 1986, 98-133.

EDUCATIONAL PLANNING

Taylor, William. Crisis in the universities. *OECD Observer* (143), 1986, 13-6.

EDUCATIONAL ADMINISTRATION

Epstein, Richard. On drafting rules and procedures for academic fraud. *Minerva* 24 (2-3), 1986, 344-46.

REPORT OF the Committee on Academic Fraud: The university of Chicago. *Minerva* 24 (2-3), 1986, 347-58.

CURRICULUM

Ranade, Ashok D. Perspective studies in Music. *Sangeet Natak* (80), 1986, 14-9.

TEACHERS & TEACHING

Civikly, Jean M. Humor and the enjoyment of college teaching. *New Directions Teaching and Learning* (26), 1986, 61-70.

Daly, John A. Communication apprehension in the college classroom. *New Directions Teaching and Learning* (26), 1986, 21-31.

Devito, Joseph A. Teaching as relational development. *New Directions Teaching and Learning* (26), 1986, 51-60.

Hocker, Joyce L. Teacher-student confrontations. *New Directions Teaching and Learning* (26), 1986, 71-82.

Jones, Joel M. The art of teaching: An act of Love. *New Directions Teaching and Learning* (26), 1986, 83-91.

Norton, Robert W. Communicator style in teaching : Giving good form to content. *New Directions Teaching and Learning* (26), 1986, 33-40.

Ruegg, Walter. The academic ethos. *Minerva* 24(4), 1986, 393-412.

EDUCATIONAL RESEARCH

Jacob, Evelyn. Qualitative research traditions: A review. *Rev Ednl Res* 57(1), 1987, 1-50.

Williams, Bruce. The direct and indirect role of higher education in industrial innovation: What should we expect. *Minerva* 24(2-3), 1986, 145-171.

EDUCATIONAL TECHNOLOGY

Bostock, Stephen J and others. The effects of learning environment and gender on the attainment of computer literacy. *Studies Adult Edn* 19(1), 1987, 37-45.

Cowper, Don and ohters. Teaching at a distance with CAL. *Open Learning* 2(1), 1987, 25-30.

Hosie, P.J. Satellites and education in Australia: Learning from international experience. *British J Ednl Tech* 18(1), 1987, 60-76.

Robertson, Bill. Audio teleconferencing: Low cost technology for external studies networking. *Distance Education* 8(1), 1987, 121-30.

EVALUATION

McClain, Charles J. Assessment produces degrees with integrity. *Ednl Record* 68 (1), 1987, 47-52.

Zoffer, H.J. Accreditation bends before the winds of change. *Ednl Record* 68(1), 1987, 43-44.

ECONOMICS OF EDUCATION

Auten, Gerald E and Rudeny, Gabriel G. Tax reform and individual giving to higher education. *Eco Edn Rev* 5(2), 1986, 167-78.

Jones, L.R. and others. Reform of budget control in higher education. *Eco Edn Rev* 5(2), 1986, 147-58.

Rumble, Greville. Why distance education can be cheaper than conventional education. *Distance Education* 8(1), 1987, 72-94.

Schwartz J. Brad. Wealth neutrality in high education: The effects of student grants. *Eco Edn Rev* 5(2), 1986, 107-18.

Siegfried, John J. The effects of student higher education grants. *Eco Edn Rev* 5(2), 1986, 129-34.

PROFESSIONAL EDUCATION

Heathcote, Gaye. Promoting health education. *Open Learning* 2(1), 1987, 31-6.

ADULT EDUCATION

Fletcher, Colin and Ruddock, Ralph. Key concepts for an alternative approach to adult education. *Convergence* 19(2), 1986, 41-48.

Garrison, D.R. Researching dropout in distance education. *Distance Education* 8(1), 1987, 95-101.

Gregson, John. Open learning for national recovery. *Open Learning* 2(1), 1987, 8-10.

Kember, David and Dekkers, John. The role of study centres for academic support in distance education. *Distance Education* 8(1), 1987, 4-17.

Larcher, Dietnar. Distance as metaphor. *Open Learning* 2(1), 1987, 11-13.

Moore, Michael G. Distance learning in the United States: The near future. *Distance Education* 8(1), 1987, 38-46.

Rebel, Karlheinz. The role of group learning in multi-media distance teaching. *Open Learning* 2(1), 1987, 19-24.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Lewis, Arnold and Powell, Margaret S. The silent threat: How federal policy stifles scholarship. *Ednl Record* 68(1), 1987, 19-25.

Umunc, Himmet. In search of improvement: The reorganisation of higher education in Turkey. *Minerva* 24(2), 1986, 433-55.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

BIOLOGICAL SCIENCES

Anthropology

1. Mohinder Pal. *Analysis of some genetic markers in blood and semen stains and their distribution in Indian populations.* Panjab.

Environmental Sciences

1. Balakrishnan, S. *Geochemical and isotopic studies of the komatitic rocks of Kolar Schist Belt, South India.* JNU.

Microbiology

1. Mohinder Kaur. *The studies on the biological properties of bacterial elastase with special reference to female sterility.* Panjab.

2. Shah, Pramodchandra Ratilal. *Studies on some aspects of acute diarrohoea in infants and children in rural areas of Panchmahal District in Gujarat.* Bhavnagar.

Biochemistry

1. Radhakrishna, P. *Studies on the production of biogas from non-edible oil cakes.* Osmania.

2. Rajender Singh. *Studies on fructose* 1,5 *bis-phosphatase phosphogluco-isomerase and phosphoglucomutase from immature wheat, Triticum aestivum L. grains.* HAU.

3. Sayeed, Shabbir Ahmad. *Bioenergetic processes of wheat, Triticum aestivum L. leaf chloroplasts: Characterization of endogenous regulations and exogenous factors on photochemical activities.* JNU.

Botany

1. Bawa, Rajan, *Structural and functional studies of three semi grassland communities near Shimla.* HP.

2. Bhatnagar, Madhu. *Ecological study of mustard and summer paddy crops in relation to different soil moisture levels.* BHU.

3. Debata, Bira Kishore. *Study of in-vitro culture of anthers for induction of haploids.* Utkal.

4. Gupta, Pragya. *Morphology and physiology of some fungal spores in coprophilous group.* HS Gour.

5. Murumkar, Chandrashekhar Vasantrao. *Physiological studies in chickpea, Cicer arietinum* L. Shivaji.

6. Narasimha Rao, J.L. *Heterotrophic nitrogen fixation in paddy soils.* Utkal.

7. Nirmal Kaur. *Physiology of grain development in wheat under different temperature and moisture regimes.* PAU.

8. Pandotra, Ved Raj. *Physiological studies on the variation in different isolates of Curvularia Prasadii Mathur and Mathur causing leaf blight of Costus specious (Koening) Smith.* Panjab.

9. Sadasiva Reddy, Tippireddy. *Ecological study of grassland biome of Bhavnagar.* Bhavnagar.

10. Saroop, Sant. *Biochemical analyses in relation to productivity of plants I. Hormonal regulation of nitrogen metabolism.* Saurashtra.

11. Sreeramulu, Damodara Sreedhar. *Tissue culture studies on a few economically important crop legumes.* Baroda.

12. Tewari, S.N. *Evaluation of some of the indigenous plants for antifungal and antibacterial properties against major fungal and bacterial pathogens of rice.* Utkal.

13. Upadhya, Ashok Kumar Bhupal. *Studies of physiological changes during leaf development.* Shivaji.

Zoology

1. Bannatwala, Ramesh Chandra. *Reproductive biology and hormonal control in a teleost fish.* HS Gour.

2. Chatterjee, Sujata. *Studies on behavioural genetics in Drosophila ananassae.* BHU.

3. Kumud. *Analysis of the Interactions between stored products mites and storage fungi in a micro-cosm.* HAU.

4. Mohan Jit. *Ecophysiological studies on earthworm in relation to conversion of soil nutrients.* HAU.

5. Nagle, S.L. *Innervation of the digestive tract of major carps.* Bhopal.

6. Pushpa Devi. *On the karyotypic variability of some Indian curcullionidae (Coleoptera).* Panjab.

7. Siva Prasad, R. *Studies on the effects of some non-steroidal antifertility drugs on the reproductive organs of the male rat.* Hyderabad.

8. Soni, R.P. *Comparative study of haversian system of bones in different mammals.* Bhopal.

9. Tiwary, Parmanand. *Studies on polymorphism in Callosobruchus analis F. (Coleoptera: Bruchidae).* Ravishankar.

10. Upadhyaya, Netaji. *Effects of certain organophosphorus insecticides on the endocrine glands with special reference to reproduction in the female catfish, Mystus vittatus Bloch.* BHU.

Medical Sciences

1. Gupta, Suniti. *Effect of dietary protein on calcium metabolism in rats.* PAU.

2. Gurbani, Sarla Govindram. *A study on pharmacokinetic profile of rifampicin in undernutrition.* Baroda.

3. Saini, Tulsi Ram. *Microencapsulation and formulation studies of some therapeutic agents.* HS Gour.

Agriculture

1. Bhandari, Jagrup Chand. *Genotype-environment interactions, path coefficient and combining ability analysis for some forage characteristics in Setaria anceps Stapf ex Massey.* HP Krishi.

2. Chauhan, Partap Singh. *Silvi-genetical approaches in productivity of Populus ciliata Wall. ex Royle.* YS Parmar.

3. Dey, Jyotirindra Kumar. *Pedogenesis and classification of some submerged soils of Assam and their suitability for rice cultivations.* PAU.

4. Dubey, Ajay Kumar. *Morphological and biochemical investigations in smallbitter gourd (Kakrol) Momordica dioca Roxb.* CSAT Kanpur.

5. Dutta, Munindra Nath. *Studies on the phosphorus use efficiency in a potato maize, potato-wheat cropping sequence in an acid soil of Himachal Pradesh.* HP Krishi.

6. Dwivedi, Kedar Nath. *Genetic analysis of yield components in rice, Oryza sativa L.* CSAT Kanpur.

7. Gupta, Ramesh Chandra. *Dynamics of ameliorants in saline sodic soils and tolerance of wheat varieties under salt affected condition and graded fertilization.* CSAT Kanpur.

8. Hardyal Singh. *Studies on the effect of herbicides and growth regulators in relay cropping system of pea and tomato.* YS Parmar.

9. Hooda, Mohinder Singh. *Genetic studies in sugarcane.* HAU.

10. Kabir, Golam. *Cytomorphological and biochemical differentiation in Cicer species.* BHU.

11. Makne, Vishwanath Ganoba. *Genetic analysis of oil, protein yield and other quantitative characters in groundnut, Arechis hypogea L.* Marathwada Agrl.

12. Mandal, Braj Lal. *Integrated weed management in ground nut, Arachis hypogaea Linn.* Rajendra Agrl.

13. Mittal, Richa. *Studies on some plant membrane glycoprotein enzymes: Purification and properties of 5-nucleotidase and acid phosphatase from the membranes of Arachis hypogaea cotyledons.* Roorkee.

14. Pandey, Ram Lakhan. *Physiological studies on growth, yield and drought resistance of gram, Cicer arietinum L.* CSAT, Kanpur.

15. Poonam. *Some studies on potato leaf roll virus disease in India.* HAU.

16. Prasad, Shambhu Saran. *Tracer studies on the chemistry of phosphorus and its transformation in alluvial soils of Bihar.* Rajendra Agrl.

17. Rajendra Prasad. *Water use and fertilizer-use efficiency of maize and wheat as affected by root manipulation through tillage on two soils.* PAU.

18. Ram Kumar. *Studies on the physiological basis of variation in yield in different varieties of wheat.* BHU.

19. Ramesh Kumar. *Determination of maturity indices and appraisal of the effect of some growth regulators, nutrients and fungicidal treatments on the storageability and postharvest physiology of apple, Malus domestica Borkh Cv Red delicious.* YS Parmar.

20. Randhawa, Jatinder Singh. *Genetic assessment of floral biology and productivity in brinjal, Solanum melongena L.* PAU.

21. Ravinder Kumar. *Simulation of salt distribution in soil and wheat yield in relation to water quality.* HAU.

22. Reddy, P.J.R. *Interaction effects of atrazine and nitrogen fertilization in maize, Zea mays L.* BHU.

23. Sarveshwar Dayal. *Studies on seed germination of tomato, Lycopersicon esculentum Mill: orka, Abelmoschus esculentus (L) Moench and bittergourd, Momordica charantia Linn.* HAU.

24. Sharma, Kesho Ram. *Soil-site suitability evaluation criteria for some agroforestry plantations of Punjab for land use planning.* PAU.

25. Sukhwinder Kaur. *Studies on fruit rot of brinjal due to Colletotrichum, Fusarium and Phomopsis Spp. in the Punjab.* PAU.

26. Suri, Surinder Mohan. *Development of pest management programme in Brassica oilseeds in Kangra Valley.* YS Parmar.

27. Umrao Singh. *A study on the adoption of modern farm technology in relation to supply of farm credit by lead bank in district Varanasi, U.P.* CSAT Kanpur.

Veterinary Science

1. Jatinder Paul. *Protein degradability of different agro-industrial by-product in the buffalo calves.* PAU.

2. Mohan Das, Priya. *Studies on the pathology of experimental selenium toxicity in guinea pigs.* HAU.

3. Uma Shankar. *Studies on certain aspects of hormonal therapy for anoestrus in bovines and synchronization of oestrus in cattle and buffaloes with prostaglandin F_2 alpha.* CSAT Kanpur.

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3.	History	—	1 TLR	—	1 TLR
4.	Botany	—	—	—	2 TLR
5.	Geography	—	1 R	1 Lv	—
6.	Education	—	1 R	—	—
7.	Psychology	—	—	1 TLR	—
8.	Hindi	—	—	1 TLR	—
9.	Economics	—	1 R	—	—
10.	Geology	—	1 R	—	—
11.	Law	—	—	1 TLR	—
12.	Music	—	—	—	1 Lv Vocal
13.	English	—	1 TLR	2 TLR	2 TLR 1 Lv

Note—R-implies regular, TLR-Implies Temporary likely to be regular, Lv-implies leave vacancy.

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(a) Consistently good academic record (that is to say the overall record of all assessments throughout the academic career of a candidate) with first or high second class (that is to say with an aggregate of more than 54 percent marks) master's degree or an equivalent degree of foreign University in one of the subject taught in the college, and

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Provided that if a candidate possesses 10 years experience of teaching post graduate classes or 20 years or more experience of teaching degree classes or seven years experience of Principalship of a degree college or if he is or has been confirmed Principal of 5 years or more standing of any postgraduate college, the Selection Committee may relax the requirement of doctorate degree.

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Either—Eminent scholarship with published work of high quality and active engagement in research and ten years experience of teaching or Research and experience of guiding research of doctorate level;

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(ii) Five years experience of teaching or research including at least three years as Lecturer or in equivalent position;

4. For The Posts of Lecturers (except Music-Vocal)

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5. For the Post of Lecturer Music (Vocal)

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A traditional or professional artist with highly commendable professionable achievement in the subject concerned.

Further details regarding qualifications, service terms and permissible relaxations in qualifications will be provided with application form. Preference will be given to SC/ST and disabled candidates if otherwise considered suitable by the Selection Committee. Application form will not be sent by post after **10-7-87**. Applications on plain papers and received after due date are not acceptable.

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5. **Reader in Ophthalmology, Department of Ophthalmology.**

Qualifications : M.S. (Ophthalmology)/M.D. (Ophthalmology).

Teaching/Research Experience : As Lecturer in Ophthalmology for five years in a Medical College.

6. **Reader in Ocular Pathology, Department of Ophthalmology.**

Qualifications

I-Essential : M.S. (Ophthalmology)/M.D. (Ophthalmology)/ M.D. (Pathology)/M.D. (Pathology and Bacteriology).

Teaching/Research Experience : As Lecturer in Ophthalmology/Pathology with experience in Ocular Pathology for five years in an Ophthalmic Institute or Medical College.

II-Desirable : Original research publication in the speciality in Indian and foreign Journals.

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Qualifications

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Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157

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University News

MONDAY, JUNE 29, 1987

Rs. 1.50

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UNIVERSITY
NEWS

VOL. XXV JUNE 29
No. 26 1987
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor:
SUTINDER SINGH

University of Mysore
PRABHAVA PROJECT

Y. P. Rudrappa*

Prabhava Project is a rural educational and developmental project with emphasis on women. Conceived as part of meeting its obligation to Society, the project involves the university in the Rural Development Programme. 'University News' will welcome reports of similar initiatives by other universities in the service of Society.

Since Independence, India has made a lot of progress in the field of education as well as social and economic development. Still, majority of our population in the country especially in the rural areas remain poor and illiterate and have been deprived of the fruits of country's freedom and development. This has been the hard fact, in spite of number of National and State Plans and a huge amount of financial input.

The universities are the centres of higher learning and also the centres of excellence. It is here, the youth of our country are trained to become future leaders in all walks of life. These universities are mainly maintained by the society, the main source of their funds being from State and Central Governments. The universities therefore have an obligation to find solutions to the problems of society. The main problem of the country now is illiteracy and poverty, especially of rural masses, more so of the females. In the direction of finding solutions to these problems keeping in view the acceptability, affordability and practicability, this 'Prabhava' project is undertaken.

'Prabhava' is the name of the first year of the cycle of sixty years, according to Hindu Calendar. The word connotes excellence, prominence and all these born in 'Prabhava Samvasthara' are said to be blessed with wealth—material and intellectual; abundance of food—both for body and mind; and happiness. 'Prabhava Samvasthara' commenced on 30th March, 1987 and this 'Prabhava Project' was inaugurated on 17th April 1987 at Chandakavadi village of the project area.

Under this project, two hobiels consisting of 70 villages with a population of 1,01,162 (51,700 males and 49,462 females—1981 Census) in the Santhemarahally and Chandakavadi hoblies of Chamarajanagar Taluk of Mysore District, have been selected. This is a backward area with a high population of scheduled castes, scheduled tribes and other backward classes.

The main activities undertaken under this project are:

(i) Female Literacy;
(ii) Economic Development of Women;
(iii) Primary Health Care;
(iv) Training of the selected rural students to appear for Competitive Examinations for entry into Professional and Technical Colleges after 10+2 course.

In addition, the University will enthuse the people to avail the benefits of all the ongoing schemes under various State and National Plan prog-

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Vice-Chancellor, University of Mysore, Mysore.

rammes and also enable them to achieve these targets well in advance of the targetted time.

The existing situation of the project area was first obtained from the available data from various departments. A survey has also been initiated to get the actual situation with special emphasis regarding the baseline data in respect of various fields of project work.

(i) Female Literacy

In the project area the percentage of literacy is hardly about 20%-27% among males and 13% amongst females, which is far below the state average. Totally, there are 13,914 male literates and 6,049 female literates as against the total population of 1,01,162. The facilities in the selected area are also not that adequate. There are 10 Pre-Primary Schools, 65 Lower Primary Schools, 20 Higher Primary Schools, 5 High Schools and one Junior College with no First Grade College.

It is to be appreciated that educating a man is like educating an individual but educating a woman is educating a family. A literate woman is a social asset. She can contribute immeasurably to the wholesome development of the family. Woman's literacy can help to develop a sense of awareness among children. In short, the key for development is held by women. It is therefore, all the more important that there should be an emphasis on women's education.

The existing infrastructural facilities are quite inadequate to meet the needs of all the children of school going age in spite of the existence of the provision for free and compulsory education. The drop-out rates are high especially amongst females, more so in rural areas with predominant SC/ST population. The number of illiterates in these areas over the years continues to be high. Action is being taken to increase the infrastructural facilities by providing adequate number of school buildings, competent teachers, equipment, etc. To minimise the drop-out rates, incentives are contemplated for the students, parents and teachers. Mid-day meals, supply of uniforms, teaching aids, cash incentives to the parents for good attendance of their children are proposed. Motivated teachers, preferably lady teachers are proposed to be appointed in these schools. It is hoped that by this effort, we will bring in almost all the eligible children under the fold of education, ultimately reducing the number of illiterate adults in future.

Adult education for the age group of 15 to 35 has been taken up intensively with the utilisation of the existing schemes of U.G.C., Adult Education Department, State Adult Education Council and other voluntary organisations by starting Adult Education Centres on a massive scale in every village. It is planned to start about 300 centres in all the 70 villages and quite a few of them have already been started. There is sufficient flexibility in the stipulations such as number of illiterates for each centre, timings and other stipulations normally insisted upon by the Adult Education Department. It is proposed to make all the illiterate women, literates by the end of the year with this massive efforts.

(ii) Economic Development of Women

At present, majority of women in the area are under-employed and unemployed. Most of women in the poorer sections of this area are working as agricultural labourers. This provides only seasonal employment. The survey has revealed that there is enough potentiality to provide employment by introducing income generating activities. The existing facilities under Co-operation, IRDP, Anthyodaya, Self-employment schemes are proposed to be systematically channelised to this group of women, by organising them to establish individual and community production units, Mahila Jagritha Mandals, Women's Co-operatives, etc. Taking into consideration, the locally available raw-materials and traditional skills, industries like coir industry, silk rearing and reeling, 'Donne' or leaf cup making, have been identified. Community poultry units, rabbit rearing units are being started and assisted through commercial banks, in addition to the popular schemes like dairy, piggery and sheep rearing which are being assisted through the existing schemes.

In the area, considering about 50% families are under-employed and unemployed, 700 families in these 70 villages are proposed to be organised every year for taking up such of these economic activities. Marketing aspect is also taken care of, by organising women co-operatives. Mahila Jagritha Samities have already been formed in big villages which will take care of all the activities including economic, educational and social activities.

(iii) Primary Health Care Delivery

All the existing National programmes such as Expanded Programme of Immunisation (EPI), National programme of prevention of Blindness—Prevention of Vit 'A' deficiency, Leprosy control programme are planned to cover 100% of the population by the end of the year 1987-88. The Family Welfare and M.C.H.

(*Continued on page 10*)

Educational Inequality in Orissa

Subrata Mishra*

Orissa, the second state in India had the distinction of having a woman at the helm of state affairs next to Uttar Pradesh. The tenure of Smt. Nandini Satpathy as the Chief Minister of Orissa during 1972-76 may compel one to uphold that the status of women in Orissa is comparatively better than many other states in India. This is not exactly the scene, the real status of women in Orissa is just the reverse. However, the present emphasis on the women development programmes and policies have yet to make its impact in Orissa. The pace of change towards improving the position of women is indeed very slow.

Since the overall development of women is significant in any society, it is therefore necessary for the Government of Orissa to adopt some effective measures towards giving an impetus to women studies. Women education as such started very late in Orissa. It made a beginning in Orissa under the initiative of missionaries. The expansion of female education was, however, mainly due to the fact that the girls were encouraged to attend the primary school for boys. The competition between girls and boys in these schools had been of the utmost value in stimulating the progress of both. The Female Education Committee 1914 had suggested some measures to be adopted for the expansion of primary education for girls. The Committee did not discourage co-education, but considered that if funds permitted girls schools should be established whenever the number of girls in a boys school reached 20. They thought that the quarter of the total number of lower primary scholarships should be reserved for girls together with a certain number of upper primary scholarships in districts where meritorious students were likely to be forthcoming. These recommendations of the Female Education Committee were accepted by the government and were acted upon in due course. Unfortunately, the Committee did not lay any stress on the vital issue of opening secondary schools for girls. As a result, the secondary education for the girls of Orissa was in its infancy till 1936. Before independence, except in a few cases of some ex-feudal states, and few district headquarters, there was no girls school at primary level. A general attitude towards women's education was stranded by social constraints like early marriage and unwillingness to send girls to co-educational institutions. There were a few girls' high schools in some District Headquarters and only one women's college at Cuttack before independence. But the Government of Orissa tried to expand women's education after independence by giving incentives to women institutions. The Government made a principle to take up one girls' high school in subdivisional headquarter and one women's college in each district headquarter. An early financial assistance was also assured to women educational institutions by the government. During sixties and seventies high schools and colleges in villages and towns were set up. But there were very few women's educational institutions. There were only 320 Girls High Schools in comparison to 3,104 Boys High Schools till 1985. There was no women's college in many district headquarters of Orissa till recently.

Women over the years in Orissa have been doing much better in their academic pursuits. In the merit list of various examinations, it has been found that girls very often outnumber the boys. However, it appears that women are still being discriminated from men as can be seen at different levels.

Educational activities were being regulated through the Education Code in Orissa, which is a collection of executive instructions issued by government from time to time. But action taken under the education code has been declared as illegal as the code does not have any statutory support. Orissa Government had to enact Orissa Education Act in 1969 to take adequate and timely measures to prevent mismanagement of non-government institutions. But the fate of the women of Orissa has not yet been changed as far as educational facilities are concerned.

This paper limits its observation to the scholarship system of Orissa Education Code 1965, which identifies the discriminating principles between boys and girls. The discrimination towards girls became apparent when they were given the choice to take up domestic science in place of mathematics. Mathematics as such poses problems for both boys and girls. The intention might have been there to provide girls a better chance of success and this may have helped some. But gradually it affected them in an adverse way because an inferiority complex developed in the minds of the young girls in the formulative period of their life. They were made to believe that education was meant to make them

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Teacher Fellow, Department of Political Science, University of Delhi, Delhi.

good wives and mothers and nothing beyond that. Often it is seen that some people improve in mathematics at a later stage and had it been compulsory for the girls they would have been in a position to grasp the subject. Such an option hampered the girls towards opting for better careers. However, the government has recently abolished the option and made mathematics compulsory for both boys and girls upto high school.

Another surprising fact is the scholarship principles in the Orissa Education Code. It is well-known that scholarships are given to meritorious students to acknowledge their merit and encourage them for higher education. However, scholarships should be awarded to the girls in order to boost their academic career. Hence, there should be reservation of scholarships for girls. But the Orissa Education Code has very little reservation for girls. The discrimination in distribution of scholarships between boys and girls can be seen in the following articles of the Orissa Education Code.

The Education Code of Orissa 1965 Art. 742 reads as: (a) There are Four First Grade Junior College Scholarships of Rs. 20/- each. Three of them are reserved for boys and one for girls. These scholarships are awarded on provincial basis and on merit alone. (b) There are Ten Second Grade Junior College Scholarships of Rs. 15/- each. Six of them are reserved for boys and three for girls and one should be available for both boys and girls. (c) There are Fortynine Third Grade Junior College Scholarships of Rs. 10/- each. Thirty five of them are reserved for boys and fourteen for girls. It further states that in any district or area if there would be no girls eligible for scholarship, the scholarships reserved for girls should be awarded to boys of the district or area for that term on merit only. (d) There are two hundred and fifty Junior College merit-cum-poverty scholarships of Rs. 25/- each. They are awarded to both boys and girls on the consideration of merit only. Further the Education Code Art. 747 says with regard to senior college scholarships—(a) There are six senior college scholarships of the First Grade of the value of Rs. 25/- each. Out of the six scholarships, four are for boys and two for girls and all the six scholarships are open to both Arts and Science students and awarded on provincial basis on the consideration of merit alone. (b) There are sixteen senior college scholarships of the second grade of the value of Rs. 20/- each. Out of the sixteen scholarships, twelve are earmarked for boys and four for girls. The Scholarships meant for boys are awarded subjectwise viz. 6 for Arts, 5 for Science and 1 for Commerce. These scholarships are awarded on provincial basis and on merit alone. The four second grade Senior College scholarships meant for girls are awarded on provincial basis irrespective of subjects and on the consideration of merit alone.

The following observations can be made on the above principles:

(i) Apart from the merit-cum-poverty scholarships there has been a lot of discrimination as far as other scholarships are concerned. The boys have an upper hand in availing other scholarships available in Orissa.

(ii) One may be misguided by the term awarded on 'merit only', as mentioned in the Principles of distribution of scholarships of the Orissa Education Code. However, the separate merit list for boys and girls is a policy of the Orissa Government towards discriminating the women of Orissa. The term 'merit' simply remains a mockery.

(iii) The chance of a meritorious boy loosing the scholarship is less than that of a girl. Even if a joint merit list would have been prepared the boys are always at an advantage, because the number of reservation of scholarships for boys is much more than the girls.

(iv) The boys and girls ratio (3 : 1 or 2 : 1) is further widened because of Art. 741 (c). On the basis of the same article the scholarships reserved for girls may go for the boys of the same area but not for girls of other areas.

(v) Last, but not the least, Art 741(c) is silent about a situation when the required number of boys will not be found in a particular area. Thus the girls quota can be converted to boys quota but not vice versa.

The principles of higher education make reservation of all the scholarships almost for boys, leaving very little scope for girls. Though presently the number of scholarships has increased, the ratio between the boys and girls is still prevalent.

A look into the primary education will further confirm the fact of discrimination towards girls. Before 1967, the public examination system was prevalent in Orissa. At the upper primary level, all the students of Class V had to appear in an annual examination conducted by a Board. Scholarships were given on the basis of results of this examination. In 1967, the public examination system was abolished and scholarship examination system was adopted at District (educational) level. The letter No. II. E.A. 394167, 31930-E dated 9-11-67 from the special officer-cum-Deputy Secretary to the Government of Orissa in the Education Department addressed to the Director of Public Instruction, Orissa, laid down "Instead of giving option to parents to send their children to sit for the examination each school should send five students of class V in order of merit, to the U.P. Scholarship examination." The emphasis for selection to sit in the scholarship examination was on merit rather than sex. But this spirit seemed to have changed in the letter of the District Inspector of schools of Sambalpur (Letter No. 1674 dated 8-2-82) which read "you are requested to submit the descriptive rolls of the candidates to appear at the ensuing U.P. Scholarship examination, 1982. The selection for the scholarship examination is on the ratio of 3 boys and 2 girls of each section of school as the case may be, on the basis of a preliminary selection test to be conducted by Headmaster.." So from each section of each school five students are sent for scholarship examination out of which three are boys and two are girls. The scholarships are also distributed in each Educational District to boys and girls in the ratio of 3 : 2.

The following observations can be made in the light of the pregoing:

(i) Five students (3 boys and 2 girls) from every section of a school are sent for the U.P. scholarship examination. This indicates that even if all the scholarships are in favour of the girls, they are not entitled to it.

(ii) In the distribution of scholarships, the same 3 : 2 ratio is maintained. To be more specific Sambalpur Educational District has 35 U.P. scholarship out of which 21 are reserved for boys and 14 for girls. It is, therefore, clear that even if more than 14 girls will be there, among the first 35 students only 14 of them will be awarded the scholarship.

(iii) If the percentage of girls are not available to claim the scholarship their quota is transferred to boys.

(iv) The girls quota is further decreased due to the double elimination process, one at the time of sending girls for the scholarship examination and the other at the time of distribution of scholarship. Therefore, the chance of a meritorious girl loosing the scholarship is much higher than the chance of a meritorious boy.

(v) Sometimes it happens that, girls securing higher marks are debarred from the scholarship examination than the boys securing less marks. This is simply to increase the percentage of boys to claim the scholarship.

(vi) Another important point to be noted is that in rural areas it becomes difficult for the families to send their daughters for the scholarship examination which is usually held at the subdivisional headquarters. The quota of the rural girls, therefore, goes to the boys. Meanwhile there is a wide difference between the rural and urban areas towards claiming the scholarships. The rural girls who are usually poor and illiterate have very little chance for the scholarship. Whereas, the urban girls who are mostly meritorious have few scholarships at their disposal. They even fail to get a chance to sit for the scholarship examination. This indicates the segregational policy of the Government of Orissa towards improving the position of women both in the rural and in urban areas.

(vii) There is the provision of converting the girls quota to the boys quota but when sufficient number of boys are not there their quota cannot go in favour of girls.

The above discussion indicates that the scholarship principles of the Orissa Education Code are sex oriented and mainly in favour of boys. In fact Art. 729 of the Education Code lays down that maximum three students can get the scholarship from a school. But the idea behind sending five students from each school is to ensure the inclusion of at least two girls in the list. The aim was to encourage girls in the beginning which later affected them adversely. The suggestion here is that there should not be fixed number of quota for girls. The system should be such that out of five students who will be sent for the scholarship examination from each school there should be at least two girls. Even if more number of girls come within the merit list they can be sent for the scholarship examination. The same principle should be followed at the time of distribution of scholarships. In case of higher education, the interests of the girls should be protected. There should not be reservation of more number of scholarships for boys. Rather, there should be reservation for a minimum number of scholarships for girls. However, any number of girls who come in the merit list should be in a position to avail of the scholarship. It is important that the Government of Orissa appreciates the genuine problems of women and adopts a positive attitude towards improving the women educational programme in Orissa. ☐

THE LOTTERY ATTITUDE

Padmabhushan Dr. H. Narasimhaiah, former Vice-Chancellor, Bangalore University and President, National Educational Society of Karnataka, in a wide ranging Convocation Address delivered at the Gulbarga University at its 5th annual convocation warned against the lottery attitude or the gambling mentality. It manifests in desiring without deserving like one must get wealth without effort; one must pass examination without study; one must become rich overnight, etc. As an attitude this is dangerous for no nation or individual can achieve progress by this mentality. Dr. Narasimhaiah cautioned against dependence on luck, fate and horoscopes. He was emphatic that systematic effort, determination, hard and sustained work were necessary to achieve success in any field. Excerpts:

Convocation

The period of childhood is as important to institutions as it is to individuals. During this period it is the duty of the University administration, the members of the faculty and the students to lay a firm foundation with forethought and in a systematic way for the allround development of the University. It is also necessary to formulate good conventions during this period. Just as parents pay special attention towards their child till it is well developed, so also it is the primary duty of the Government to extend all financial help and support to the newly started Universities and other educational institutions. Otherwise, just as a child has to suffer a number of ailments in its infancy for want of care and balanced diet, a University also will face a number of difficulties and will be subjected to retarded growth. Just as the Government is rightly supporting family planning, there should be a self-imposed restraint on the part of the Government in starting new Universities, schools and colleges. It is not wise for the Government to start new Schools, colleges and universities on political considerations and yielding to vested interests. At present there are more than 4000 Primary schools and 700 high Schools without proper buildings. Similar is the fate of many colleges. The development of the newly started universities is moving with a snail's pace on account of the paucity of funds.

No Government, whether it is Central or State, should squander its funds in a short-sighted manner for cheap popularity, short-time gains and for furthering political interests. According to the Indian Constitution the Government should provide employment to all who have a right to work. On the other hand, by initiating certain programmes, the Government is encouraging the right to beg. A statesman carefully plans in the interest of the coming generations, whereas, a politician's interest will be limited mostly to the next elections. There is a great need for a greater number of statesmen in our Country.

Having been a teacher and an educational administrator for more than four decades, the defects in the field of education are more evident to me now than ever before. Demand for educational reforms is very old. Controversies have been going on regarding the patterns of education. In this context one important factor has not been taken into consideration. Our Constitution shows the path along which the country and the society should proceed and it also contains the privileges and the duties of citizens. The Constitution is a sacred document of authority accepted by all. All the hopes and aspirations enshrined in the Constitution should be implemented only through education. There is no other way. Therefore, every individual, more than that educators, educational administrators should be guided mostly by the Constitution while framing any educational pattern. They should never ignore the contents of the Constitution and should bestow their serious consideration and make systematic efforts to include the main features of the Constitution with explanation in the educational system.

The word secularism that is included in the preamble of the Constitution should be explained properly without giving rise to any confusion. The people running the Government and many other peopl think that secularism means that the Government should pay equa respect to all religions. This is absolutely wrong, "Secular State" means that the Government shoul be totally neutral in religious matters The Government should not suppor or oppose any religion. Religion is purely a private matter. Accordin to the Constitution the Governmen ermits every citizen full freedom f religious belief of his choice. ut no religious practices should be bserved in Government institutions. imilarly, there should not be any nge of religion in the activities of ducational institutions. However, is necessary to provide opportuniies for the study of the origin, rowth and principles and teachings f different religions in the curricuum. In reality many educational nstitutions have become centres for ropagating their own religions. The aily happenings in Punjab are a roof of the havoc that can be reated by the mixing of politics vith religion. Honestly, religion hould be separated from politics nd education. It should be brought ome that every student is essentially n Indian.

Besides, the Constitution consists of many valuable principles. Among hem the ten Fundamental Duties of Citizens are the most important. Many people pay attention only owards their rights and privileges. But not towards their duties. Among these ten duties the eighth duty "to develop scientific temper, humanism, spirit of inquiry and reform" is of great importance. It has the greatest potentiality and implication. There is no alternative but to publish a booklet consisting of these ten articles explaining clearly the implications of all these ten duties. On the whole it is necessary to take all steps to shape the personality of the student. Caution is to be exercised to see that no principle of the Constitution is violated directly or indirectly by the syllabus, or the mode of teaching or any programmes that are being held in educational institutions. The implementation of this is not easy. University and the departments of education should have honest commitment and concern in this regard and should give the right training to teachers.

We must not forget another important factor with regard to the curriculum. The curriculars should be in conformity with the needs of life, society and the country. It should be relevant. These problems of life, society and the country should constitute the main part of the curriculum. The absence of this is strikingly conspicuous in the present syllabus.

For example, there is no reference at all to the caste-system which is notorious for its social injustice and which is also the root cause of a number of serious problems. The havoc perpetrated by the caste-system, which has been a curse, is not even mentioned in any lesson. No guidelines are outlined towards the elimination of the caste-system. Creating awareness for the eradication of the caste system should form a prominent part of education.

Another example. As all of us know our country is overflowing with superstitions. In spite of it, the persons who are entrusted with the task of preparing textbooks have not taken into consideration this important matter. We can compare science to light and ignorance to darkness. The co-existence of science and superstition in this age of science is painfully surprising. The present pattern of education converts an uneducated communal-minded person into an educated communal-minded person, and an uneducated superstitious person into an educated superstitious person. Educated-superstitious persons and educated communal minded persons are more dangerous to the society than their uneducated counterparts. Similarly a dishonest intelligent person is more harmful to the society.

After understanding logically, without emotion and with an open mind, he sensitive and intricate problems like the caste system and superstitions, methods of solving them should be included in the textbooks. Among these methods, the scientific method is the most important and powerful. This scientific method should be used to understand and solve all problems. By using this scientific method in the field of religion and spirituality, it is possible to refine religions and pave the way for ushering in a universal religion of man. Otherwise, the existing meaningless, dogmatic quarrel "My religion is superior to your religion, my God is superior to your God" continues, resulting in disturbing public tranquility. Social problems are more intricate than economic problems in our country. It is not as easy to solve social problems as the economic problems. Social problems have been the warp and the woof of our daily life for centuries. They have entrenched themselves firmly in our day to day life. On the whole education should become an effective and powerful tool for social and economic change.

Medium of instruction is the most important aspect in education. Only the mother tongue or the regional language should become the medium of instruction at the primary stage. Permitting the English medium is an unpardonable crime. Gradually all higher education should be only in the regional language. English should be taught only as a language and it should never be used as a medium of instruction.

English medium Schools, elite institutions with vested interests, rich people, upper strata of people in different fields, many mass media, and the games like cricket, generally support western values. These western values have been creating a powerful and unhealthy impact on the youth and students.

It is evident that these people have become foreigners in our own society. Everybody in general and mostly the middle and the upper class people in particular have been increasing gradually their wants. The warning "If you buy what you do not need, then you will need what you cannot buy" given by Sir M. Visweswaraya decades ago has become true today. The intoxication of pompous and ostentatious life is increasing. Simple living has become rare among the upper strata of the society. The people of the other classes have forgotten the usefull adage based on experience "Cut your coat according to the size". Gandhiji made a meaningful statement years ago, "We have for every body's need and not for every body's greed." It is more difficult to implement the meaningful educational pattern than its formulation. Such a difficult task is possible only by teachers. They are the architects of this great project. There is a chance that even the best educational pattern could be damaged by incompetent and unsatisfactory teachers. It is very necessary to guide and educate the teachers through periodical educational seminars, workshops, refresher and orientation courses. The teacher should not forget that he is a student for life.

Another outstanding defect in the qualifications for the appointment of college teachers is strikingly evident. For the satisfactory working in any field special training pertaining to the field is necessary in addition to a general qualification. This should apply to the field of education also. To become a primary school teacher one should have a two year T.C.H. in the methodology of teaching in addition to the general qualification of S.S.L.C. To become a high school teacher one should have one year B.Ed., degree in addition to a general degree. But according to the present practice a Master's degree is enough to become a college teacher. One need not have even a trace of knowledge regarding teaching methods. This is not correct. This seriously affects the quality of teaching. Therefore, it is necessary that special training is to be given to College teachers in the methods of teaching. In addition to good teaching, the teacher's conduct, his way of life is also expected to have an impact on the attitudes of students. It is desirable that teachers remember this fact. We often hear complaints from teachers that the society does not accord them due respect and status. Respect and status are not commodities which are available in a market. These are all valuable assets. These have to be earned by selfless and untiring service, scholarship and their way of life. These cannot be acquired from others either by charity or by force.

It is our experience that the number of books for study are being increased under the pretext that the educational standards are going down. The back of the primary school student is bent under the weight of these books. The main purpose of education, that too, at the university level is not merely communicating facts and figures. These form only a part of education and not its essential part. The chief object of education is to shape the attitudes of students on right lines and to make them think independently fearlessly, with an open mind and thus encourage them to improve their quality of thinking. To achieve this, priority should be given to questioning, discussion and dialogue in the mode of teaching. All progress is achieved only by the process of questioning. Nothing should be accepted mechanically and everything should be accepted only with evidence. Importance was given to dialogues, questions and answers at the time of the Upanishads and Socrates.

It has become a habit for Government and Universities to say that the developmental works and other useful programmes are held up for want of finances. This is partly true. We are not aware of the fact that work is wealth. Youth power and manpower constitute precious wealth of our country. It is possible to implement the various developmental and other useful activities of villages concerning tanks, roads, schools, buildings, sanitation and environment, through the community service of villagers. It is not necessary to look to the Government for each and every item of work. It is of utmost importance to develop a feeling among villagers that it is their village. It must be the duty of the universities and the Government to channelise the youth power and manpower along creative and constructive activities. Besides, money is not required for teachers to go to their classes on time and the employees to go to their offices punctually and also for performing a number of their other duties. The necessary will and the attitude are required. A sense of duty and work ethic require no finances. It is necessary to inculcate in life the very important quality of working without supervision. This too does not require any finances. This requires only self-respect. The practice of supervision either in an examination or elsewhere damages self-respect and dignity. It is possible to cheat an external supervisor. But it is impossible to cheat one's own conscience which is the ever vigilant supervisor. Therefore, it is the duty of the educational institutions and teachers to draw the attention of the students to the existence of their conscience and act according to its dictates. We should be mainly afraid of our conscience only. When such an awareness dawns on us then it is possible to perform many items of work naturally, honestly and effectively.

Our country is known as a land of religion and of righteousness. Our attention is more towards God than towards man. We are more particular about the other world than this world. Instead of building schools and hospitals we construct temples. We waste commodities in the name of religion. Instead of giving milk to a hungry child we make rivers of milk to flow over images. Religion has become commercial. Centuries ago Vidhura told Dhrutharastra:

Dharmaoya Phalamachhanthi
Dharmam Nechhanthi Manavaha

That is everybody wants the fruits of Dharma but nobody leads a Dharmic life. All our efforts, attention and money should be utilised for the progress of man. We go on discussing endlessly the subjects which we do not know and the subjects which do not stand the test of verification. For example, it seems one day a religious leader went to a town. He asked a youth there, the way to the local post office to post a letter. The youth gave him proper directions to the post office. The religious man thanked him and invited him for his evening's lecture in the town. The youth wanted to know the subject of his talk. The religious man informed him that he would be speaking on "The way to haven". The youth retorted "you do not even know the way to the local post office then how can you show the way to heaven?" Needless to say that the religious leader was naturally very much embarrassed. Without understanding man, without knowing how to live properly in this world, we will be thinking of heaven and hell.

Natwaham Kameye Rajyam
Na Swargam Naapunanbhavam
Kemaye Duhklha thapthamam
Praninam Aarthtnaranam

was part of Gandhiji's daily prayer. The meaning of this is that I do not want heaven or salvation but give me an opportunity to serve the miserable people by being born again and again. Essentially one should find happiness in service. Basavanna's saying 'Work is Worship" is of great import.

Fantastic discoveries have taken place in this age of science. The use or misuse of these discoveries is in the hands of man. Every body knows that the nuclear weapons can destroy the world in a split second. Even in daily life by misusing science for selfish purposes and to promote vested interests we are committing anti-social and destructive acts. I would like to illustrate this with an example. It is possible to know the sex of a child before its birth with the use of science. Misusing this knowledge the process of getting only male child by destroying the female foetus has already begun. Such inhuman efforts of selfish people with rotten values in creating a motherless society by misusing science should be strongly condemned. There is nothing which is more worshipful than the mother in this world. Without looking down on women, it is necessary to treat women and men equal in all social and economic spheres and also in respect of their rights and privileges. Wisdom and humanism should control the application of the discoverer of science. It is necessary to acquire the wosdom for creating a society in which there is no conflict between science, moral values and human values.

This universe came into existence billions of years ago. In the solar system life exists only on earth. Millions of years ago the life which started from a single cell has developed into this human form in accordance with the theory of evolution. This man who is like a speck of dust is the repository of intelligence which can unravel the mystery of the universe and the working of nature. Even now the evolution of man is continuing ceaselessly. The evolution of life should not be mutilated under any circumstances by the misuse of science. Not only that, all our efforts should help the natural evolution so that man becomes a superman and not a demon.

Attitudes are developing in all fields in a dangerous way. One must get wealth without effort. One must pass examinations without studying. One must become rich overnight. All this indicates lottery attitude or gambling mentality. By this mentality no nation or no individual can achieve progress. Systematic effort, determination, hard and sustained work, are necessary to achieve success in any field. We should not depend on luck, fate and horoscopes. It is always healthy to develop such a self confidence that our future is shaped by our own efforts.

The people of Germany, mainly its youth, with great patriotism and devoted work reconstructed in about 30 years a mighty Germany, which was totally destroyed by the Second World War. The achievement of our country with 70 crores of people in sports is insignificant when compared to that of tiny South Korea, and East-Germany. We do not have in enough measure the strong determination to achieve, and to succeed at any cost. Already politics has entered into the field of sports as in other fields. There are enough hurdles in the way of achieving excellence. I wish to illustrate this with an example.

It seems once an international exhibition of crabs was organised. The crabs of each country were exhibited in a wide closed glass container with water placed on a table. But the glass container having Indian crabs did not have alid. The visitors were greatly surprised at this. "How is it that the container has no lid at all? Do not the crabs climb up and escape from the vessel?" was the natural question of the onlookers. The reply was "Our crabs cannot escape like that. If any crab tries to climb up, the neighbouring crabs do not allow it to go up by pulling its hind legs". These crabs seem to have acquired the attitudes of our people.

It is not possible to get all knowledge and awareness only through textbooks. It is possible to get valuable information from the society, environment and happening in nature. For that we should hav an inquisitive mind, a keen sens of observation and a strong will Siddhartha(did not become Buddha Gandhiji did not becme a Mahatma only by the formal education. Eve though it is not possible for ever one to become a Buddha or Mahatma it is possible for all of u to follow their path.

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PRABHAVA PROJECT

(*Continued from page 2*)

programmes are to be intensified by innovative methods, like meaningful incentives, active community participation, etc., to exceed the targets set under each of these programmes.

(iv) Talent Search and Training of Rural Students

At present, the opportunities of professional education are monopolised by the children of the urban areas and it has become very difficult for the rural children to compete with them. It is mostly on account of lack of proper and conducive environment, lack of facilities and poor teaching and training, the potentially bright rural student population is deprived of higher and technical education for want of right environment and opportunity. To remedy this situation and train rural students for competitive examinations for admission to medical, engineering and other technical and professional courses, under this programme, about 10 children from each school in the area at the 9th and 10th standard are selected based on their school records, reports of their teachers, parents and a test. The selected children are provided with additional teaching and training to enable them to compete with the urban children to get into technical and other professional courses. These students are given additional training in English, Physics, Chemistry, Mathematics and Biology through the selected teachers who themselves are exposed to special training in the new methodology of teaching. Additional coaching will be provided to students to acquire competence and merit in these subjects at a slightly higher level than others. These teachers and students will be brought to Mysore City during vacation, to expose them to the urban atmosphere, Medical, Engineering and other Technical Colleges and the University.

Active Involvement of the Community

No scheme of this nature can hope to succeed without the active and meaningful involvement of the Community. Towards this end, committees at the village level involving women, youth and the children are constituted. A committee at the taluk level has also been constituted for the effective implementation of the programmes. This committee consists of the local officers, concerned with various developmental schemes, and the local leaders. Guidance to this project is being given by a Central Committee consisting of the Vice-Chancellor, the President of Zila Parishad, Chief Secretary of Zila Parishad and other Divisional and District functionaries of Government.

The implementation of the project is done through the National Service Scheme Wing of the University. The whole programme will be managed with almost no extra funds from the University. It is proposed to make use of the funds and the facilities already available under the various schemes of the Government and the University, and with the assistance of the Government—State and Central and other agencies which are concerned and interested in the activities covered under this Prabhava Project.

It is expected that this 'PRABHAVA PROJECT' will provide an effective, acceptable, affordable answer in meeting this challenge of education especially female education and economic development in the rural society more so of the deprived masses in the rural and remote areas.

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Rabindra Bharati Silver Jubilee Plans

The Rabindra Bharati celebrates its silver jubilee this year. To commemorate the occasion the university has planned new expansion programmes. The university is proposed to be converted into an "affiliating" in character. Science subjects are also proposed to be introduced.

The University Grants Commission (UGC) has approved several teaching posts for Humanities, Fine Arts and Visual Arts. In the Visual Arts faculty, plans are afoot to set up Departments of Sculpture, Applied Art, History of Art and Graphics. The UGC has also sanctioned a special grant for the Museum and the university proposes to use modern methods of acquisition and preservation of antiquities. The adult education unit of the university has taken up several literacy programmes in backward areas of the State.

CBRI Designs Navodaya Schools

The Central Building Research Institute (CBRI) at Roorkee has been entrusted with the task of designing 500 Navodaya Vidyalayas to be set up by the Human Resource Development Ministry. The first set of designs for schools to be built in the plains of northern India and a special design for the school in Uttar Pradesh's Sultanpur District have been presented to construction agencies.

A typical Navodaya Vidyalaya would have about 20 acres of land. A building complex for 560 students, residential accommodation for students and staff, workshops, a library, laboratories, farming and fishing areas and a biogas plant will be built on this land.

The highlights of the designs were multiple use of space, minimum circulation area and fullest utilisation of local materials.

Low-cost technology making use of stone masonry blocks and thin-ribbed slabs were expected to reduce the cost of walling and roofing by 30 to 20 per cent.

Consultancy Centre for IIT, Kanpur

The Indian Institute of Technology (IIT), Kanpur, is reported to have decided to establish an Industrial Consultancy and Design Centre (ICDC) as an autonomous organisation independent of the IIT, Kanpur administration.

The products and techniques developed in various laboratories of the Institute will be engineered for commercial exploitation by this centre. In addition, ICDC will also undertake projects on commercial lines, sponsored by various industries in a time-bound and oriented manner. It will not involve itself with the government sponsored agencies which will continue to be administered by the Dean of R & D within the institute's framework.

Cochin University to Tie-up with Japan

The University Grants Commission has identified the Cochin University of Science and Technology as one of the universities in the country for the Science and Technology Cooperation between the Republic of India and the Republic of Japan.

The modalities of interaction finalised by the Joint Committee of India-Japan Cooperation in Science and Technology are :

(a) exchange of information

(b) visits of scientific personnel

(c) meetings and seminars of experts, and

(d) formulation of joint projects and programmes for collaboration.

The areas identified by the Commission for cooperation by the University are Electronics and Information, laser materials, neodymium glass, ruby, galium, arsemite and related compound.

RRL Recognised as Research Centre

The Cochin University of Science and Technology has recognised the Regional Research Laboratory (Government of India), Trivandrum as a Research Centre of the University. Accordingly, doctoral research programmes can be done at the RRL's Chemical Division, which comes under the Faculties of Science and Technology, and the Process Engineering Division under the Faculty of Technology.

Child Education Council Awards

The Indian Council for Child Education has announced two awards of Rs. 2,500 each for outstanding contribution to child education and children literature. The award for child education will be given to a teacher or a scholar who has made significant contribution in the field of child education in India. For children literature the award will be given to an author for his total contribution in any Indian language.

The Council would also honour 50 people, 25 in the field of child education and 25 for their contribution to children's literature on the occasion of its second national conference scheduled in November this year.

News from Agril. Varsities

Dryland Farm Research Technology for Oilseeds

The Birsa Agriculture University (BAU) has adopted the dryland farm research technology with special emphasis on oil-seeds and pulses as a major thrust area for the current Kharif operation. Research on oilseeds will receive the highest priority, because of national concern on shortage of oil-seeds in the plateau region of Bihar, which is well-suited for various oilseeds crops.

The Department of Plant Breeding and Genetics has made valuable contribution in identifying short duration, high yielding varieties of groundnut, namely, Phule Pragati (JL-24) and Gujarat Groundnut 2 (J-1).

Steps are being taken to follow various approaches, which have to be concurrently undertaken in order to substantially boost oilseeds production in minimum time. These approaches could embrace greater emphasis on those oilseeds crop with higher yield potential, adoption of proper cropping system and proper varieties, optimum use of stored water for life saving irrigation for establishing the crop stand during Rabi and creation of infrastructure like marketing and price support for these crops. The oilseeds crop with higher proven yield potential under rainfed condition, groundnut and soyabean in the Kharif season and sunflower in the Rabi, have wide area of adoption, higher yield potential and suitability of being used as inter-crop component. But lack of marketing facilities and price support are the most important reasons for their less usage.

More emphasis had been given for adoption of proper cropping system, viz, intercropping systems, sequence cropping and relay cropping system. Some of the remunerative intercropping systems could be pigeonpea/groundnut, pigeonpea/soyabean, pigeonpea/sesame, upland rice/soyabean. Intercropping is one of the successful means to increase the area under oilseed.

Sequence cropping has been found possible and remunerative in the medium lands of the entire plateau region, which have relatively heavier soil texture and adequate moisture holding capacity. The profitable sequence crops in these medium lands can be rape and mustard, sunflower and linseed, following the Kharif crops of maize, soyabean, ragi, green gram, black gram and rice.

Though there are improved varieties, which have higher yielding capacity, better disease and pest resistance and higher oil content care is taken to develop still superior varieties. Perfecting the agronomic management have been considered of paramount importance. Care is also taken on the non-monetary inputs in increasing oilseeds production.

The possibility of increasing area under irrigation during the Rabi season, with execution of various minor and medium irrigation projects, attempts are on way to bring maximum area under toria and mustard since the yield level of this crop can be boosted up to 15-20 quintal per hectare with just two to three irrigations.

Linseed can also be a suitable crop for irrigated conditions.

We Congratulate . . .

(1) Dr. Manas Chatterjee who has been appointed as Vice-Chancellor of the Vidyasagar University, Midnapore.

(2) Prof. G.S. Marwaha, former Director of Indian School of Mines, Dhanbad, who has been awarded a Certificate of Commendation by the Institution of Mining Engineers, England, in recognition of his contributions to the science and art of Mining Engineering.

Sports News

New Sports Policy for Punjab

The Punjab Government is reported to have constituted a high-powered committee to formulate a new sports policy for the State. The committee, which is headed by the Punjab Chief Secretary, Mr. P.H. Vaishnav, will have both official and non-official members. Besides other things the high-powered committee will examine the feasibility of bringing the Punjab Sports Departments, the Punjab Education Department (Sports Wing) and the Punjab State Panchayati Raj Khed Parishad under one umbrella, examine ways and means of building sports nfrastructure, deployment of coaches right down to the block level and providing the latest equipment for all sports disciplines. The committee would submit its report within a fortnight.

A memorandum containing suggestions for the promotion of sports and involvement of youth in sports activities has also been presented to Mr. S.S. Ray, Governor by the President of POA, Mr. Sukhdev Singh Dhindsa. The memorandum calls for more incentives for sportsmen and women, making coache and trainers accountable for the performance of their teams, sports competitions in schools and colleges in an organised manner, mass competitions in athletics, merger of the three sports wings of the Punjab Government, strengthening of the Sports Association of Punjab Semi-Government Organisations (SAPSO), holding of major national and international meets in Punjab, permission to operate a lottery scheme to generate funds for the promotion of sports and land for building a Punjab Olympic Bhavan in Chandigarh.

New Degree Course in Sports

The University Grants Commission has approved proposals from 5 universities and 10 colleges for starting a three-year degree course in physical education and sports from the ensuing academic year. The universities include Visva Bharati, Santiniketan; SNDT Women's University, Bombay; Kanpur University; Shivaji University, Kolhapur and Kalyani University. The list of colleges approved to start the course are: H.H. Raja's College, Pudukottai, Tamil Nadu S.G.M. College, Karad, Maharashtra; Willingdon College, Sangli, Maharashtra; Tilak Degree College, Auraiya, Etawah, UP; M.M.H. College, Ghaziabad, U.P.; C.M. College, Darbhanga, Bihar; R.K. College, Madhubani, Bihar; Samastipur College, Samastipur, Bihar; S.R.K. Goenka College, Sitamarhi, Bihar; and M.S. College, Motihari, Bihar.

News from Abroad

Asiatic Society of Japan Prize

The Asiatic Society of Japan, established in 1872 and one of the oldest learned societies in Japan, intends to award a prize of U.S. $ 1,000 for an essay in Japanese studies within the areas of history, social studies, and literature. The winning essay will be published in the Society's *Transactions*. Candidates may select their own subject provided such subject has been previously submitted to and approved by the Editor. The essay must be a genuine work of original research, hitherto unpublished, and one which has not been awarded any other prize. The length, excluding footnotes and appendices, should not exceed 8,000 words and the essay must be submitted on or before 31 December, 1987.

The detailed regulations should be obtained in advance from the Editor, Dr. Derek Massarella, at the address below :

The Asiatic Society of Japan,
Central P.O. Box 592, Tokyo,
Japan.

AIU News

AIU Standing Committee Meets at Manipur

212th meeting of the **Standing Committee** of the Association of Indian Universities (AIU) was held at Manipur University, Imphal on 18 June, 1987. Prof. G. Ram Reddy, Vice-Chancellor, Indira Gandhi National Open University, presided. It was attended by Dr. P.V. Salvi, (Vice President, AIU), VC, Konkon Krishi Vidyapeeth; Prof. Ramesh Mohan, VC, Meerut University; Dr. Sukhdev Singh, VC, Punjab Agricultural University; Shri L.D. Kataria, VC, Haryana Agricultural University; Shri K.K. Dave, VC, Dr. Hari Singh Gour Vishwavidyalaya; Prof. K.N. Shah, VC, Saurashtra University; Prof. Ramlal Parikh, VC, Gujarat Vidyapith; Dr. B.H. Rajurkar, VC, Marathwada University; Prof. K.J. Mahale, VC, Manipur University and Prof. T. Navaneeth Rao, VC, Osmania University.

The Standing Committee accepted the reports of the Visiting Committees and admitted Haryana Agricultural University, Mangalore University and Narendra Deva University of Agricultue and Technology to the regular membership of the Association. The Committee resolved to enrol Dr. Y.S. Parmar University of Horticulture and Forestry to the provisional membership of the Association.

The Committee noted with indignation the high-handed manner in which Prof. (Dr.) K.N. Prasad, former Vice-Chancellor, Patna University was dismissed by the Chancellor, particularly when provision exists in the University Act for following natural justice conducting an enquiry against the Vice-Chancellor. The members were unanimous that a strong protest be made to the Chief Minister of Bihar and the Chancellor of the Bihar Universities against this arbitrary action. It was also desired to explore whether legal action can be taken in the Supreme Court on this matter.

The Committee expressed itself in favour of a uniform AIDS Test on persons coming from foreign countries as against on foreign students only. It was suggested that the Indian Missions abroad should insist on this test before issuing the Visa. The Committee also resolved to communicate to the UGC and the Central and State Governments its recommendation that the terminal benefits be extended to the retiring vice-chancellors at par with the judges and other public servants employed in public posts. The Committee commended the proposal received from the Ministry of Human Resource Development and Pt. Govind Vallabh Pant Birth Centenary Celebrations National Committee regarding establishment of Chairs in the name of Pt. Pant in the universities. It was also resolved that Prof. P.N. Srivastava's suggestion to start University Bookshops on the university campuses be recommended to the universities for their consideration.

Earlier, the **Equivalence Committee** endorsed the provisions of the protocol on recognition of secondary stage qualifications, diplomas and degrees awarded by the accredited universities and institutions of higher learning in Arab Republic of Egypt. The Committee felt that while inter-disciplinary courses needed to be encouraged, the difficulties in accepting such degrees be examined in depth with reference to specific problems. The Committee decided that the Bachelor of Sports, Humanities and Physical Education degree of Haryana Agricultural University be recognised as D.P. Ed. degree.

It was decided to recognise the following qualifications as +2 stage qualification:

1. High School General Diploma (academic transcript issued by Saskatchewan Department of Education, Canada) conducted at the Black Forest Academy, West Germany;
2. SMA / SLTA / Senior High School / Secondary School Advanced Stage Examination of Indonesia;
3. Diploma (High School) of Singapore American School, Singapore;
4. High School Diploma of American School of Brasilia (Brazil) (Escola Americana de Brasilia); and
5. High School Diploma of American School of Hague, Netherlands.

It was also resolved to acept the following degrees/qualifications as corresponding degree/qualification of an Indian University.

I. B.Sc. (General) / (Honours) degree of University of Zimbabwe, Harare;

II. B.A. in Accounting of Canberra College of Advanced Education, Canberra, Australia;

III. B.A./B.Sc. of University of Philippines, Philippines;

IV. MBA degree of De La Salle University, Manila, Philippines;

V. B.A./B.Sc. degree of University of Tabriz, Iran;

VI. B.Sc. in Mechanical Engineering of University of Santo Tomas, Philippines;

VII. B.A./B.Sc. degree of Addis Ababa University, Ethiopia;

VIII. B.A. degree of University of Mauritius, Mauritius; and

IX. Bachelor/Master's degrees from the accredited Universities / Institutions in USA.

The **Cultural Committee** decided to hold the Inter-University National Youth Festival Akola as proposed by Amravati University, and Punjabrao Krishi Vishwavidyalaya. The programme for the four zonal festivals was finalised as per details below:

Zone	*Venues*	*Dates*
North	Haryana Agricultural University, Hisar	Nov. 21-24, 1987
West	University of Bombay, Bombay	Dec. 3-6, 1987
South	Madurai Kamaraj University, Marudai	Dec. 26-29, 1987
East	Manipur University, Imphal	Jan. 4-7, 1988

Efforts are being made to organize these festivals in such a manner that there is maximum interaction of the Indian youth with the Russian youth coming to participate in the youth programme as a part of Festival of USSR in India. It is proposed to organise an International Youth Festival for foreign students studying in Indian Universities in one of the university compuses in February, 1988. A Regional Youth Festival for the universities of SAAR countries is also proposed to be organised by AIU.

The **Sports Committee** adopted the report on the reorganisation of Sports Division to gear it for the increased sports activities. The Sports Calendar for the year 1987-88 was finalised and 80 summer university level coaching camps in 47 university campuses were allocated. The Committee also approved the recommendations of the National Seminar on Physical Fitness and Sports Standards in Universities organised by the Association at Udaipur. It may be recalled here that the Seminar had urged that minimum required sports facilities could be worked out by the UGC in collaboration with AIU. Popular games among the rural masses should be encouraged and sports should be introduced as an elective course at undergraduate level. To improve the quality of coaching, it was suggested that the content of the coaching programme should be strengthened. It was suggested that physical fitness tests should be conducted regularly in colleges and universities to improve the physical fitness of the students on a mass scale.

It was decided that the next (213th) meeting of the AIU Standing Committee and other Sub-Committees be held at Sri Krishnadevaraya University, Anantapur from September 23 to 25, 1987. ☐

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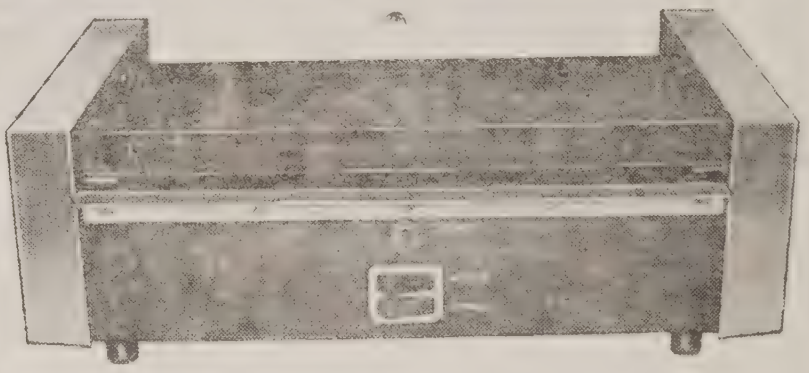

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CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
July 3-4, 1987	National Symposium on Development of India's Mineral & Fuel Resources	To discuss the entire spectrum of mineral sector—metallic and non-metallic minerals, coal, ground water, oil and natural gas.	Department of Applied Geology, Indian School of Mines, Dhanbad.	Prof. K.L. Rai, Convener, Diamond Jubilee National Symposium, Department of Applied Geology, Indian School of Mines, Dhanbad - 826004.
July 17-20, 1987	Seminar on Undergraduate Curriculum and Social Relevance need for Community Colleges	To discuss all aspects of undergraduate education with reference to community needs	Association of Indian Universities in collaboration with Gujarat Vidyapith.	The Organising Secretary C/o Gujarat Vidyapith Ahmedabad 380014
July 22-24, 1987	15th National Conference on Fluid Mechanics and Fluid Power	To bring together researchers and designers, working in diverse fields like Mechanical, Civil, Power, Aeronautical and Chemical Engg. besides Mathematics and Physics to review the state of the art and the recent developments.	Regional Engineering College, Srinagar in collaboration with National Society of Fluid Mechanics and Fluid Power.	Dr. A.M. Bhat, Organising Secretary, 15th National Conference on Fluid Mechanics and Fluid Power, Department of Mechanical Engineering, Regional Engineering College, Srinagar 190 006.
Sept. 21 - Oct. 4, 1987	Training Course in Research Methodology in Geography	To expose the participants to research methods in Geography and quantitative and cartographic techniques employed in Geographical research.	Department of Earth Sciences, Manipur University, Imphal.	Dr. R.P. Singh, Dpartment of Earth Sciences, Manipur University, Imphal.
November 16-20, 1987	Seventh National Symposium on Radiation Physics	To provide a forum for a collective discussion and identification of the emerging new directions in the field of Radiation Physics	Department of Physics, Mangalore University in collaboration with the Indian Society for Radiation Physics	Dr. N. Lingappa, Convener, Programme Committee, NSRP-7 and Head, Department of Physics, Mangalore University, Mangalore.
November 25-27, 1987	International Conference on Mud Architecture	To focus discussion on the concept of Mud Architecture and technology & share national & international experience in this field.	Ministry of Urban Development, Govt. of India, in collaboraton with the Govt. of Kerala, HUDCO and the All India Housing Development Association.	Mr. V. Suresh, Organising Secretary, ICMA '87 & Regional Chief, Housing & & Uurban Development Corporation, K.G. Road, Bangalore - 560 009.
November 26-28, 1987	International Seminar on Instrumental Methods of Electro-Analytical Techniques.	To provide a forum to research workers and practitioners for exchange of information and technical perceptions in instrumental methods of electroanalysis.	Indian Institute of Science, Bangalore.	Prof. M.H. Dhananjaya, Principal and Chairman of the Organising Committee, S.J. College of Engg., Mysore.
December 7-11, 1987	Seventh Triennial International Conference on Thin Films. (ICTF-7)	To take stock of recent progress in the field of science, technology and applications of their films.	Indian Institute of Technology, New Delhi, in collaboration with IUVSTA Thin Film Division and Indian Vacuum Society.	Dr. Lalit Malhotra, Secretary, ICTF-7, Thin Film Laboratory, Deptt. of Physics, Indian Institute of Technology, New Delhi-110016.

A Valuable Contribution

Chalam, K.S. Finances, Costs and Productivity of Higher Education, New Delhi, Inter-India Publications, 1986. 240 p. Rs. 195.00

The decade of 1960s was most significant as it was during that period that most of the textbooks on Economics of Education were published, many conferences and seminars were held in India and abroad, special issues on various aspects of economics of education were brought out and above all a torrent of articles were published in journals throughout the world to emphasise the role of human capital and its measurement problems. As Blang rightly puts it, 1960s can be considered as the 'birth decade' of Economics of Education.

The decade of 1970s was comparatively slow in representing the mainstreams of economics of education, probably because of the oil crisis that occurred in 1970's and which shook the economic policies in both the developed and the developing countries. However, 1970s was significant from the point of view of research in some of the measurable aspects of economics of education such as Rate of return on education, Cost-benefit of public expenditure on education, Rate-of-return on Investment in women's education, etc.

But 1980s will always be remembered in India for the tremendous increase in the publication of general books on higher education in the wake of the New Education Policy. There has been in fact a kind of spate of literature on economics of education specially since 1982-83.

The book under review, which is based on the Ph.D. thesis of the author earlier submitted by him to Andhra Pradesh University, attempts to evaluate the finances and productivity of higher education in Andhra Pradesh with the help of macro as well as micro data of the system. Though the conclusions are primarily drawn from the study of the problems of higher education in Andhra Pradesh, their general application has been discussed by the author with relevance to the problems of finances and productivity of Indian education.

The author has very systematically traced the earlier history of financing of higher education in India and more specially emphasised on the role of grants-in-aid in education. In the earlier part of the book a brief account of the evolution of grant-in-aid system in India, their determinants, sources and methods of allocation has been given. It has been aptly remarked that "there is no uniform policy of grants-in-aid in the country". Three conclusions of great significance draw one's immediate attention; (a) The State which spends more on overall education spends much more also on higher education in percentage terms; (b) UGC in India is concentrating more on universities than on affiliated colleges; and (c) there has not been enough cost consciousness in the country to ensure efficient use of resources for higher education.

The educational situation in Andhra Pradesh particularly in higher education has been discussed in Chapter 2. It shows that there are wide variations in the growth of different levels and types of education. For example, the study has shown that the proportion of students pursuing postgraduate courses in the professional courses has increased much faster than in general education during the period 1956-57 to 1975-76.

The pattern of finances is discussed in Chapter 3. It emphasises the fact that the educational expenditure in Andhra Pradesh has grown faster than the SDP during the last two decades. However the educational effort of the State in terms of per capita and per student expenditure on education is less than the national average during the same period. Among different items of direct expenditure, salaries of teachers, in the general and professional streams accounted for 63.0 and 53.0 per cent of the total expenditure on higher education, respectively in 1975-76.

The sources of finance for higher education in the State are examined in Chapter 4. The author has drawn attention to the fact that the private endowments, which played a very dominant role in collegiate education two decades ago, have now declined and contribute less than one fourth of the finances. Another important fact of the study is that the elasticity of the government funds to the private sources is found to be 1.75 in the case of general education and 2.52 in the overall higher education, implying that a one cent increase in expenditure by private sources leads to more than one per cent increase in expenditure by government. The elasticity of expenditure with respect to fees income of general education is more than one (1.18) while the coefficient of endowment receipts is less than one (0.23).

Three facts have been brought out clearly by the study. One, that the total grants of the State never exceeded even 5 per cent of the total UGC grants to all universities in the country and 10 per cent of the total expenditure on higher education within the State. Second, nearly 80 per cent of the amount is given to the universities and only 20 per cent was given to the colleges in 1975-76. The author has made an attempt to examine the financing of education both at the institutional and the individual levels by analysing unit costs for year 1979-80. Another glaring fact which comes out of the present study is that the government cost is most in the colleges where hostel facilities for weaker sections are provided. It is estimated that fees contribution of the students to the total cost constitutes nearly 15 per cent in some degree colleges, whereas the State's subsidy to the institutions stands at 85 per cent of the institutional cost.

As regards private costs by the income background of the student, it is shown by the study that the private costs increase progressively with the increase in the income of the parents. But it is pointed out that the lower income and occupation status students are under-represented in higher education. On the basis of this study, the total expenditure of the govt. on higher education is also projected upto 1985-86 on the basis of unit costs. Thus the analysis of the finances of higher education has brought out that the government has been taking a major responsibility of funding the higher education in the State.

The external productivity of different levels of education in terms of the rate of return and the earning differentials has also been analysed by the author on the basis of studies made by others. The analysis has revealed that the rate of return and earning of higher education have decreased during the period 1955-56 to 1975-76. While an increasing trend is observed in the case of primary and secondary education. This conclusion tallies with the studies made on the all India level by Dr. Panchamukhi and Dr. G.D. Sharma.

The conclusions drawn by the author are fully supported by some recent studies, the prominent among them being by Dr. K.K. Balachandran in his doctoral thesis on "Government Grants and Higher Educational Development" in 1985.

However the author has not taken into account the discussion on opportunity cost and social benefit. In fact the social benefit aspect has been completely left out. The whole emphasis of the book is on the financial aspect and as such the effects of social changes on higher education and that of higher education on social and political changes has not been discussed at all. Recent studies on economics of higher education have shown that these factors play a very important role in determining not only the cost of education but also its spillover effects. An addition of this discussion to the present study would have enhanced its value.

However, in its present form the book is a valuable contribution to the literature on economics of education. Some of its conclusions. which are in the form of hypotheses, need verification through further research by students of economics of education. In that sense the book can form a good starting point for research work.

S.M. Israney,
Department of Economics,
University of Bombay, Bombay.

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ADDITIONS TO AIU LIBRARY

Agrawal, K.G. *Poverty, deprivation and intelligence.* Delhi, Criterion Publishers, 1987. viii, 384p.

Atiya Begum. Fyzee-Rahamin, *Music of India.* Chandigarh, Abhishek, 1987, 95p.

Banerjee, Projesh. *Dance in thumri.* Delhi, Abhinav, 1986. viii, 115p.

Banerjee, Utpal K., ed. *Computer applications for rural development.* Delhi, Vikas (c1987) xiii, 284p.

Barrow, John C. *Fostering cognitive development of students.* San Francisco, Jossey-Bass, 1986. xx, 392p.

Barua, B.P., ed. *Directory of Indian public libraries.* Calcutta, Naya Prokash, 1986. xiii, 520p.

Becker, Gary S. *Human capital: A theoretical and empirical analysis with special reference to education.* Chicago, University of Chicago Press (c 1975) xiii, 250p.

Bharati Shivaji. *Art of Mohiniyattam.* Delhi, Lancer, 1986. 107p.

Calder, Ritchis, ed. *Future of a troubled world.* London, Heinemann, 1983. xv, 220p.

Dang, Hari and Aggarwal, J.C. *Implementation of the new education policy* 1986: *A critical evaluation of the programme of action.* Delhi, Arya Book Depot, 1986. xv, 167p.

Das, Biswarup. *Orissa : Social, Cultural and religious aspects.* Delhi, Sundeep Prakashan (c 1985) xvii, 182p.

Das, S.T. *Life style: Indian tribes. V. 1.* Delhi, Gian Publishing House (c 1987) 309p.

Dev, Bimal and Lahiri, Dilip K. *Manipur culture and politics.* Delhi, Mittal, 1987. 256p.

Doshi, Saryu, ed. *Pageant of Indian Art : Festival of India in Great Britain.* Bombay, MARG (c 1983) 173p.

Duke, Chris, ed. *Edult education :International perspectives from China.* London, Croom Helm (c 1987) 254p.

Fowler, H.W. *Dictionary of Modern English Usage.* Hertfordshire, Omega Books, 1984. x, 742p.

Frager, Robert and Fadiman, James. *Personality and personal growth.* New York, Harper and Row (c 1984) xiii, 522p.

Joshi, O.P. *Sociology of Indian art.* Jaipur, Rawat Publications, 1985. xiii, 172p.

Mackenzie, Donald A. *India.* London, Mystic Press (c 1985) xlviii, 463p.

Marateck, Samuel L. *Basic.* Orlando, Academic Press (c 1982) xvi, 475p.

Mohanty, S.B. *Student teahning.* Delhi, Ashish, 1987, 100p.

Mookerjee, Ajit. *Folk art of India.* Delhi, Clarion Books (c 1986) 121p.

Moonis Raza and Nangia, Sudesh. *Atlas of the child in India.* Delhi, Concept, 1986. xx, 475p.

Red, Alan. *Discovery and exploration: A concise history.* London, Gentry Books, 1980. 328p.

Richards, James L. *Pascal.* Orlando, Academic Press (c 1982) vii, 482p.

Rowland, A. Westley, ed. *Handbook of institutional advancement.* San Francisco, Jossey-Bass, 1986. xxiii, 796p.

Sharma, Lokesh. *Olympics.* Calcutta, Orient Longman (c 1984) 171p.

Tilak, Jandhyala B.G. *Economics of inequality in education.* Delhi, Sage (c 1987) 197p.

Venkatesananda. *Yoga.* Delhi, Himalayan, 1984. xxii, 191p.

Walker, Robert, ed. *Applied qualitative research.* Hants, Gower (c 1985) 203p.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

HUMANITIES

Philosophy

1. Bhaskar, Anuradha. *Advaita Vedant evam Kashmir Shaiv darshan mein sadhana ka sameekshatmak adhyayan; Geeta Bhasya ke sandarbh mein.* BHU.

2. Dwivedi, Vijay Shankar. *Kashmir Shaiv darshan aur sankhya darshan mein shrishti ka swarup.* BHU.

3. Sahoo, Dibakar. *The concept of justice : A critical study.* Berhampur.

4. Tripathi, Surender Kumar. *Mimansa darshan mein Prabhakar Sampradaya.* Bundelkhand.

5. Verma, Neelam. *Shankaracharya ke mayavad ke pariprekshya mein Shri Arvind ka mayavad.* BHU.

6. Yadav, Arun Kumar. *Mahatma Gandhi kee drishti mein Hindu dharam: Ek sameekshatmak adhyayan.* BHU.

Fine Arts

1. Agte, Malati. *The artistic content in Marathi advertisements: A critical study with special reference to advertisements in Marathi dailies and periodicals in the last half century.* SNDT, Bombay.

Music

1. Adsule, Leela. *Khayal Gayakichi vividh gharani.* SNDT, Bombay.

Dance

1. Srinivasan, Usha Venkataramanan. *A critical study of the nritya vinoda of Manasollasa.* Baroda.

Language & Literature

English

1. Bajpai, Mridula. *Attitudes and motivation of Indian learners of English as a second language.* HS Gour.

2. Bande, Usha. *Anita Desai's novels: A study in character.* HP.

3. Bindra, Davinder. *The faminine principle: A study of divine mother and her various aspects in Sri Aurobindo's Savitri.* HP.

4. Cheema, Pratibha. *Quest for love: A study of Carsion McCuller's fiction.* Panjab.

5. Dakhinkabat, Padma Charan. *Organicism in modern poetics with special reference to Cleanth Brooks and Murray Krieger.* Utkal.

6. Joolkar, Vikas. *A stylo linguistic study of Swadeshi English fiction with reference to Malgonkar's novels.* Bhopal.

7. Kanaka Durga, D. *Dilemmas of existence: A study of Henry James's short fiction.* Osmania.

8. Kirpal Singh. *Variations on eros in the poetry of five contemporary Indian poets in English.* HP.

9. Mary, K.A. *The verb phrase in English and Malayalam: A study based on the new testament translations.* Kerala.

10. Pant, G.P. *A.C. Bradlegs approach to Shakespearion tragedy: A critique.* Bhopal.

11. Pathania, Usha. *A study of human relationships in the novels of Anita Desai and Kamala Markandaya.* HP.

12. Raina, Aneel Kumar. *Marxism and literary value: A critical appraisal of Marxist approaches to literary value with special reference to the writing of Raymond Williams and Fredric Jameson.* Panjab.

13. Saxena, G.C. *F.R. Leavis as a critic.* Bhopal.

14. Viswanatha, Vanamala. *Equipping 'vs' enabling: Two approaches to the teaching of literature in a first language context.* Bangalore.

15. Walia, Shelley. *Individual and society in the major novels of Evelyn Waugh: A socio literary analysis.* Panjab.

Sanskrit

1. Ahuja, Kashmir Chand. *Treatment of nature in modern Sanskrit poetry, twentieth century, 1901-1980 A.D.* Panjab.

2. Aruna Kumari. *Mahabharat ke kariyaroop, Adiparava tatha sabhaprav: Ek bhashik adhyayan.* HP.

3. Desarkar, Bharati. *Pandit M.S. Nyayacharya, since dead.* Calcutta.

4. Lal Bahadur. *Shukla Yajurveda-pratishakhya tatha Yagyavalkya shiksha ka tulnatmak adhyayan.* BHU.

5. Pandey, Sushama. *Acharya Bhaskar Kanth krit Chittanubodh Shastram ka sameekshatmak adhyayanan.* BHU.

6. Pathak, Murlidhar. *Vishishtadwait sidhant mein jeev aur ishwar ka sambandh.* BHU.

7. Saraf, Uma. *Smiriti kaleen samaj vyavastha.* Bhopal.

8. Sharma, Geeta. *Saraswati Kanthabharanalankara : Ek sameekshatmak adhyayan.* BHU.

9. Sharma, Rattan Chand. *Subandhu-Virachita Vasavdatta kee Antahkathayen: Ek alochnatmak adhyayan.* HP.

10. Shukla, Din Dayal. *A critical study of the Matharavritti.* BHU.

11. Simlai, Rabikanta. *The principal natikas in Sanskrit: A comparative and critical approach.* Calcutta.

12. Singh, Pushpa. *Harinamamrit vyakaran aur Paniniya vyakaran ka tulnatmak adhyayan.* BHU.

13. Upadhyaya, Brahma Prakash. *Puraneshu shabdanushansameeksha.* BHU.

14. Yadav, Sudarshan Singh. *Vayas-shiksha: Ek alochanatmak adhyayan.* BHU.

Pali

1. Barua, Rebatapriya. *Visuddhimaggo granthe banddhatatha.* Calcutta.

Punjabi

1. Sunder Singh. *The concept of grace in the poetry of Guru Nanak.* Panjab.

Hindi

1. Acharya, Usha. *Bhaktikalin asufi premakhyanon ka snusheelan.* BHU.

2. Achuthan, A. *A study of the translated dramas of modern Indian language in Hindi and their impact on Hindi theatre*. Calicut.

3. Anita Rani. *Adhunik natakon mein apatkiya tanav, 1960-80*. Panjab.

4. Awasthi, Mahender Prasad. *Ramkavya kee prisht bhoomi mein Laldaskrit Avadh Vilas ka adhyayan*. Bundelkhand.

5. Chandraiah, Ch. *Ila Chandra Joshi: Vyaktitva aur krititva*. Osmania.

6. Dhurve, R.P. *Adhunik sandarbh mein Ramcharit Manas kee prasangikta*. Bhopal.

7. Dixit, Seema. *Vishram Sagar ka kavya shastriya adhyayan*. Bundelkhand.

8. Goswamy, V.L. *Mohan Rakesh ke katha sahitya ka manovishleshnatmak adhyayan*. Bhopal.

9. Jain, Surekha. *Bundeli lokgeeton mein upanyason ka swarup*. Bundelkhand.

10. Johri, Pushpa. *Uttar chhayavadi kavya ke tattvon ke sandarbh mein Bachchan ka adhyayan*. HS Gour.

11. Khare, Vinod Kumar. *Rajdhar Satsai ka kavya shastriya anusheelan*. Bundelkhand.

12. Maurya, Madhulika. *A comparative and contrastive study of Hindi and English verb morphology*. BHU.

13. Nirmal Devi. *Makhanlal Chaturvedi ka parivesh, kavya tatha vichardhara*. Panjab.

14. Pandey, Hariprasad Manokanika. *Nai kavita kee bhasha, kavya shatriya sandarbh mein*. Baroda.

15. Pandey, Indiwar Pd. *Nav geet mein lok chetana*. BHU.

16. Parkor, Pratibha. *Hindi ke sahityakar kee jeevani per adharit upanyas*. Osmania.

17. Prasad, Madhvi. *Agyeya aur unke upanyas*. BHU.

18. Premila Devi. *Athaven dashak kee Hindi kavita: Mukhya dhara evam pravrittiyon ka vishleshan*. BHU.

19. Renu Rani. *Swatantrayottar Hindi natak sahitya: Natyavyapar ke sandarbh mein*. Panjab.

20. Shrivastava, Dharmendra Nath. *Hindi upanyason mein samajik vightan*, 1950-1975. Bundelkhand.

21. Shukla, Vimalesh. *Avadh Vilas Mahakavya ka shoudh parak anusheelan*. Bundelkhand.

22. Singh, Kameshwar Prasad. *Nai kahani mein madhyavargiya jeevan*. BHU.

23. Srivastava, Usha. *Bhaktikaleen Hindi sahitya mein Sriradha tattva*. BHU.

24. Tomer, Munesh Devi. *Swatantrayottar Hindi mahakavyon mein yugbodh*. Panjab.

25. Tripathi, Shyam Mohan. *Shudh Dwaitvad aur uska adhunik Hindi kavya per prabhav*. Bundelkhand.

26. Tyagi, Pratibha. *Radhaswami sampradaya ka sahityik evam darshnik vivechan*. Bundelkhand.

Urdu

1. Khan, Anwar Ahmed. *Urdu mein tadrisi Abad-ka aghaz-o-irtiqa*. Nagpur.

2. Mahboob Alam. *An analysis of the concepts of criticism in Urdu*, 1914-1970. JNU.

3. Mukhtar Ahmed. *Jahir Dehlavi: Hayat-o-fun*. Bhopal.

Oriya

1. Mishra, Mahendra Kumar. *Orissara sanskruti-o-sahityaku kalahandira dana*. Sambalpur.

Gujarati

4. Pandya, Vinodbhai Ambalal. *Vrujlal Kalidas Shastri, 1825 A.D. 1882 A.D.: Ek adhyayan*. Patel.

Arabic

1. Akhtar, Ayisha. *A semantic study of Arabic with special reference to proverbs*. Bhopal.

Kannada

1. Venkatesha Murthy, H.S. *Kannadadalli kathanagalu*. Bangalore.

Telugu

1. Sastry, V.L.S. *The place of Tirupati Vankata kavulu in the Telugu drama literature*. BHU.

2. Sumathi Devi, Paladugu. *Bhaskara Ramayanam: Strepatra chitrana silpamu samagra sameeksha*. Andhra.

Geography

1. Gupta, Devicharan. *Integrated area development of Tehsil Naraini in Banda District*. Bundelkhand.

2. Pathak, Manohar. *Types of agricultural occupance of flood plains along the Ganga River between Varanasi and Ballia, U.P.* BHU.

3. Sabir Hussain Sheikh. *Malwa : A study in rural settlements*. Vikram.

4. Shashikala, A.V. *Agricultural landuse and resource development in Rayalseema: A geographical analysis*. Osmania.

5. Shukla, Kishore. *Ramayana: A study in ancient geography*. Bundelkhand.

6. Singh, Karm Vir. *Chapra: A study in urban geography*. BHU.

7. Singh, Pushpa. *Ghaziabad: A study in urban geography*. BHU.

8. Verma, Surya Kant. *Administrative organisation of space in an Indian State: A case study of Punjab*. Panjab.

History

1. Bhaskar Reddy, G.V. *A critical study of the erotic element in Ancient Indian sculptures*. Vikram.

2. Dahal, Peshan. *Social life in Nepal under the Mallas*. BHU.

3. Dwivedi, Sandhya. *Art and iconography in Buddhist paintings in Gupta period, 4th to 6th century A.D.* Bhopal.

4. Gopalakrishnan, K.P. *The land revenue system in Karnataka*, 1920-1962. Bangalore.

5. Jain, Kamal Prabha. *Prachin Jain sahitya mein varnit Arthik jeewan: Ek adhyayan*. BHU.

6. Kole, Snigdha. *Ancient Indian life as depicted in early medieval Jain texts*. Calcutta.

7. Mosahari, Rabindra Nath. *Social history of the Boros of Assam : A study of oral history*. NEHU.

8. Narasimha Chary, M. *History of the Cult of Narasima in Andhra Pradesh, from 11th century A.D. to 17th Century A.D.* Osmania.

9. Narasimha Raju, Addepalli Appala. *Library movement in Coastal Andhra and Telangana, 1900-1956: A stduy in comparison through selected case studies*. Osmania.

10. Pradhan, S. *M.P. ke sangrahalayon mein sangrahit vaishnav pratimaon ka alochanatmak adhyayan*. Bhopal.

11. Seneviratne, Sudharshan Deepal Suresh. *Social base of early Buddhism in South East India and Sri Lanka, c. 3rd century B.C. to 3rd century A.D.* JNU.

12. Singh, Arvind Kumar. *Development of Nagari Script upto 13th century A.D.* BHU.

13. Singh, Shree Nath. *Gujarat ka Chalukyon ke rajnitik itihas*. BHU.

14. Ved, Ila. *History of Kutch : Political, social, economical and cultural development*, 1806-1850. SNDT, Bombay.

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Lecturer — 2. Organic Chemistry areas like Synthesis and Stereochemistry of noval organic Compounds—organic photochemistry—Modern Physical Organic Chemistry—Bio-organic Chemistry.

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6. Academic qualifications (with dates on which degrees were taken).
7. Experience : Teaching—P.G. level & U.G. level:
   Research : (with publications, if any)
8. Distinctions/Honours.
9. Acceptable salary:
10. Membership of professional, academic or scientific bodies:
11. Any other Informations :
12. References :
13. Testimonials :
14. Signature of the applicant:

Applicants who are in service should send their applications through their employer or they should produce a 'No Objection Certificate, from the employer at the time of interview without fail.

G. Ramachandran, B.Sc.
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2. Bio-Chemistry	—1
3. Nematology	—1
4. Agro-forestry	—1
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8. Political Science	—2
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10. Renewable Energy, with specialization in Farm Machinery & Power Engg./Processing Engg./Mechanical Engineering.	—1

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WARANGAL - 506004

Advertisement No. 2/87

Applications in the prescribed form are invited for the post of Registrar of Regional Engineering College, Warangal, so as to reach the Principal not later than **31st July, 1987.** Application forms and details of qualifications and experience required for the post of Registrar can be obtained from the Principal by sending a crossed Indian Postal Order/Demand Draft for Rs. 2/- drawn in favour of the Principal, Regional Engineering College, Warangal, payable at REC Post office, Warangal/ State Bank of Hyderabad, REC Branch, Warangal along with a self addressed stamped envelope (bearing postal stamps of Rs. 1.80).

PRINCIPAL

S.N.D.T. COLLEGE OF EDUCATION FOR WOMEN

KARVE ROAD, PUNE-411 038

POSTGRADUATE DEPARTMENT OF EDUCATION

Invites applications for the following courses:

Name of the Course	*Duration*	*Eligibility*	*Medium*	*Last Date*	*Application Fee and Prospectus*
Post-Graduate Diploma in Science Education	One Year	B.Sc., B.Ed. B.Sc. M.Sc.	Eng.	20-7-87	Rs. 10/-
Post-Graduate Diploma in Mathematics Education	One Year	B.Sc. B.A.	Eng.	20-7-87	Rs. 10/-
Mater of Education	One Year	B.Ed.	Eng. & Mar.	8-7-87	Rs. 20/-
Master of Philosophy in Education	One Year	M.Ed.	Eng.	15-7-87	Rs. 20/-

Dr. V.B. Mehta
PRINCIPAL

TELUGU UNIVERSITY
HYDERABAD - 500 004 (A.P.)

Advertisement No. 1/87 **Dated : 17-6-87**

Applications in the prescribed form are invited for the following posts in the University Service so as to reach the undersigned on or before **15-7-1987.**

POSTS:

S. No.	Department	*Professor*	*Reader*	*Lecturer*	*Project Assistant*
A.	**HYDERABAD HEAD QUARTERS**				
(i)	Department of Lexicography	—	1	1	1
(ii)	Department of Language Planning & Modernisation	—	—	—	2
(iii)	Centre for preparation of Encyclopaedia.	—	—	—	2 (Compiling assistants)
B.	**RAJAHMUNDRY CAMPUS**				
(i)	Department of Devotional and Lyrical Poetry.	—	1	—	—
(ii)	Department of Folk and Tribal Lore.	1	—	1	1
C.	**SRISAILAM CAMPUS**				
(i)	Department of History and Culture of Telugu Speaking people	—	1	1	1
(ii)	Department of Epigraphy and Written Records.	—	1	1	—
(iii)	Department of Archaeology and Architecture.	—	1	1	1

Scale of Pay :

1. **Professor :** 1500-60-1800-100-2000-125/2-2500
2. Reader : 1200-50-1300-60-1900
3. Lecturer : 700-40-1100-50-1600
4. Project Asst./ Compiling Assistant : Rs. 1,000/- (Consulidated) per month.

Note :

(i) All Posts are temporary and likely to be made permanent.

(ii) The Project Assistants/Compiling Assistants are temporary for a period not exceeding 24 months.

(iii) The University reserves the right to fill or not to fill up any of the posts advertised.

(iv) Relaxations, where necessary, may be considered as per U.G.C. norms.

(v) Reservations are made for the candidates belonging to S.Cs., S. Ts., B. Cs., and P. H. Cs., as per Government Rules.

Application forms together with the qualifications prescribed for the posts can be had from the Registrar, Telugu University, Kala Bhavan, Saifabad, Hyderabad-500 004, on payment of Rs. 5.00 by Demand Draft payable to the Registrar, Telugu University. If application forms are required to be sent by post, a self addressed and stamped (with postage stamps worth Rs. 1.60) envelope of 26 cms x 12 cms shall also be enclosed to the demand draft.

T. D. Prasada Rao
REGISTRAR

UNIVERSITY OF LUCKNOW
Advertisement No. 2/1987
WANTED

Professors (Rs. 1500-60-1800-100-2000-125/2-2500)

1. One in Physics (Specialisation in Experimental Solid State Physics).
2. One temporary in Physics.
3. One in Linguistics.
4. One in Zoology.

Readers (Rs. 1200-50-1300-60-1900)

5. One in Sociology (Specialisation in Political Sociology/Sociology of education).
6. One temporary in Hindi.
7. One temporary in Economics.
8. One in Political Science.
9. Two in Ancient Indian History and Arch.
10. One in Western History.
11. One temporary in Botany.
12. One temporary in Chemistry.
13. One temporary in Geology.

Lecturers (Rs. 700-40-1100-50-1600)

14. One temporary in Western History for teaching History and Culture of Asian Peoples.
15. One in Section of Oriental Studies in Sanskrit.
16. One temporary in Urdu.
17. Three temporary in Botany.
18. One temporary in Commerce.
19. Two in Public Administration.

Minimum Qualifications for Professors

Eminent scholarship with published work of high quality and active engagement in research and ten years' experience of teaching or research and experience of guiding research at doctorate level;

OR

Outstanding scholarship with esta
lished reputation for significant con
bution to knowledge.

Minimum Qualifications for Readers

(a) Good academic record with a do
torate degree or equivalent publishd wo
and active engagement in research or i
novation in teaching methods or produ
tion of teaching materials; and

(b) Five years' experience of teaching
research including at least three years
Lecturer or in an equivalent position.

Provided that the requirement contain
in clause (b) may be relaxed in the case
candidate who in the opinion of the Sele
tion Committee has outstanding researc
work to his credit.

Minimum Qualifications for Lecturers

(a) A doctorate degree or research wo
of an equally high standard in a releva
subject; and

(b) Consistently good academic r
cord with first or high second cla
Master's degree or an equivalent degr
of a foreign University in a relevant subjec

General

Benefits of Provident Fund/Pensio
available as admissible under the rule
Period of probation for permanent post
one year.

It is not necessary to fill any/all of t
advertised posts. Further details abo
qualifications etc. are attached with app
cation form. Canvassing will be disqua
fication.

Prescribed application form can
obtained, free of cost by sending a se
addressed envelope size 23 x 10 cm. wi
postage stamp worth Rs. 5.50 to cov
registration charges, from the office of t
Registrar. Last date for submission of app
cation duly completed in all respects wi
recent testimonials, publication etc. a
Bank Draft for Rs. 5/- (Postal Order
Money Order will not be accepted) in t
name of the Registrar, Lucknow U
versity, payable at any Bank in Luckno
is **July 23, 1987.**

Those who have applied for posts
Sl. No. 1, 3, 9, 10, 14 and 15 in response
our Advertisement No. 7/1985 dated 3-1
1985 need not apply afresh as their c
applications will be considered. Su
candidates may, however, intimate th
additional qualifications and attainme
during this period for their specialisati
in the respective field.

Applications without Bank Draft v
not be entertained. Candidate who are
service should send their applicatio
through proper channel. Applicati
forms to outstation candidates will
sent upto **July 16, 1987.**

B.M. Si
REGISTR

INDIAN INSTITUTE OF TECHNOLOGY DELHI

HAUZ KHAS : NEW DELHI-110016

ADVERTISEMENT NO. 10/87 (E. I)

ANNOUNCEMENT FOR RECRUITMENT TO STAFF

(A) POSITION	PAY SCALE
(i) Professor	Rs. 1500-60-1800-100-2000-125/2-2500.
(ii) Chief Scientific Officer	Rs. 1500-60-1800-100-2000-125/2-2500.
(iii) Principal Scientific Officer	Rs. 1500-60-1800-100-2000.
(iv) Chief Design Engineer	Rs. 1500-60-1800-100-2000/1500-60-1800-100-2000-125/2-2500.

(B) **DEPARTMENT/CENTRE/PROGRAMME WHERE POSITIONS WILL BE FILLED UP**

Department/Centre/Programme	*Positions*	*Specialisations*
1. Department of Physics	Professor	Applied Optics, Solid State Physics, Experimental Plasma Physics.
2. Department of Chemical Engineering	Professor	Separation Processes, Process Dynamics and Control Computer Aided Design and Mathematical Modelling
3. Department of Mechanical Engineering (BHEL Chair)	Professor	Thermal Engineering, Thermal Power Plant Engineering.
4. Department of Electrical Engineering	Professor	Fibre Optics and Optical Communications.
5. Centre for Bio-Chemical Engineering & Research	(i) Professor of Biochemistry	(a) Protein Engineering. (b) Structures-function relationship in protein. (c) Imino-Chemistry and Harmone reciptor Interaction. (d) DNA/Petitide Synthesis.
	(ii) Professor of Molecular Biology & Genetics	(a) Molecular biology of plant or animal Cell. (b) r-DNA technology/hybridoma and Vector Construction.
	(iii) Principal Scientific Officer	Bioprocess kinetics & dynamics and process analysis. Bio-process simulation and control with experience in software development.
6. ITMME Centre	*Professor	Industrial Tribology Machine Dynamics & Maintenance Engineering.
7. Centre for Energy Studies	**Chief Scientific Officer	Energy Conservation, Non-conventional sources of Energy.
8. Centre for Applied Research in Electronics	Chief Scientific Officer/Principal Scientific Officer	(a) Digital Systems Designs. (b) Underwater Communication & Sonar Signal Processing.
9. I.D.D. Centre	Chief Design Engineer	(a) Development of Training Programme in Electronic Instrument Maintenance & Instrumentation at various levels. (b) Electronic Instrumentation. (c) Industrial Design and Product Development. (d) Mechanical Design and Photo-type Development. (e) Optical Instrumentation.
10. Microprocessor Applications Programme	Professor	Microprocessor Applications in Process Control, Distributed Computing Expert Systems and Systems Programme.

*Applicants for the post of Professor in ITMME Centre can also be considered for appointment as Chief Design Engineer in the same Centre.

**Applicants for the post of Chief Scientific Officer in Centre for Energy Studies can also be considered for appointment as Chief Design Engineer.

(C) MINIMUM QUALIFICATIONS/EXPERIENCE PRESCRIBED FOR APPOINTMENT

(a) For post of Professor :

(i) **For the Post in the Department of Physics & Centre for Bio-Chemical Engineering & Research :** Good Master's Degree/Doctorate Degree in appropriate field with minimum 7-10 year's distinguished experience in Institutions of University standard at Post-graduate level; specialised knowledge in one or more specified fields with experience in guiding research. Professional/Scientific work of outstanding merit and Doctorate Degree would be preferred.

(ii) **For Posts in the Department of Chemical Engineering, Mechanical Engineering, ITMMEC Centre and Microprocessor Applications Programme :** An eminent scholar with published work of high quality actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding Engineer/Technologist with established reputation who has made significant contributions to knowledge.

(b) **For the Post of Chief Scientific Officer and Principal Scientific Officer in the Centre for Energy Studies and Centre for Applied Research in Electronics :** Good Master's Degree/Doctorate Degree in appropriate field with 7 to 10 years distinguished experience in teaching/research including design, planning, development and production of Instruments in Establishments of repute Institutions of University standard. Specialised knowledge in one or more specified fields. Professional/Scientific work of outstanding merit will be preferred.

OR

Ph.D. in Science or Engineering with relevant teaching/research experience or development work in the field of specialisation.

(c) **For the Post of Principal Scientific Officer in the Centre for Bio-chemical Engineering & Research :** First class Master Degree in Chemical Engineering/Bio-chemical Engineering preferably with a Ph.D. Degree of Indian or Foreign University based on both course and thesis work. The candidate should have adequate research/process experience with atleast two years in the design and management of integrated Chemical/Biochemical Process facilities. Candidates should have sufficient exposure of modern biological processes and bio-conversion of biomass. Basic knowledge in CAD, Optimization and Process Simulation would be considered important additional qualifications.

(d) **For the Post of Chief Design Engineer :** Good Bachelor's Degree in an appropriate field of Engineering with 10 years experience or a good Master's degree in an appropriate field of Science with 12 years experience in Design and Development in an established concern. Outstanding record in Designing and Development of Instruments, experience of looking after a Design Officer, through familiarity with production techniques, proven ability to guide a team of designers and co-ordinate design and development of instruments for laboratory teaching, research work and production would be preferred.

Prescribed application forms may be obtained from Deputy Registrar (Estt. I), Indian Institute of Technology Delhi, Hauz Khas, New Delhi-110016 either in person or sending by post a self addressed stamped envelope (size 10 x 23 cms) bearing postage stamps of 95 paise latest by **13-7-1987**. Last date for submission of application forms alongwith crossed Indian Postal Orders worth Rs. 7.50 (No fee for SC/ST candidates) is **20-7-1987** for candidates in India and **27-7-1987** for candidates from abroad.

Persons employed in Government/Semi Government Organisation/Autonomous bodies must submit their applications through their employers.

JAMIA MILLIA ISLAMIA

JAMIA NAGAR, NEW DELHI-110025

CORRIGENDUM

I. Please delete the subjects under essential qualifications at S. No. 1 for Principal, Senior Secondary School (Rs. 1100-1600 unrevised) published in box-size in last issue. This will now read as under:

> "1. Atleast second class Master's Degree (45% marks and above considered as equivalent)."

II. The grades for the posts of Assistant Engineer, Computer Operators, T.G.T. and Technical Assistant (Advt. No. 5/1987-88) published in last issue under classified columns are revised grades whereas the grades for the remaining posts are unrevised and likely to be revised.

M.N. Menai
REGISTRAR

Janata Shikshan Prasarak Mandal

INSTITUTE OF PHARMACY PUSAD

Dist. YAVATMAL (M.S.)
PIN - 445 216

WANTED

Applications are invited for the following posts to teach students of Four Years B. Pharmacy Course.

1. 2 Lecturer in Pharmaceutics.
2. 3 Lecturer in Pharmaceutical Chemistry
3. 1 Lecturer in Pharmacology.

Qualifications : As per AICTE, UGC & Ordinance No. 21 of Amravati University.

Pay Scales : As per Govt./U.G.C. Rules.

Reservation : One post shall be reserved for S.T.

Application on plain paper giving complete biodata and details of experience alongwith copies of certificates and application fee of Rs. 10/- in the form of I.P.O., drawn in favour of Principal, Institute of Pharmacy, Pusad should reach undersigned on or before 6th July, 1987.

PRESIDENT

INDIAN INSTITUTE OF TECHNOLOGY DELHI

HAUZ KHAS : NEW DELHI-110016

ANNOUNCEMENT FOR RECRUITMENT TO STAFF

ADVERTISEMENT NO. 11/87 (E.I)

(A) POSITION	PAY SCALE
(i) Assistant Professor	Rs. 1200-50-1300-60-1900.
(ii) Lecturer	Rs. 700-40-1100-50-1600.
(iii) Senior Scientific Officer Grade I	Rs. 1100-50-1600.
(iv) Senior Design Engineer	Rs. 1100-50-1600.
(v) Senior Scientific Officer Grade II	Rs. 700-40-900-EB-40-1100-50-1300.
(vi) Design Engineer	Rs. 700-40-900-EB-40-1100-50-1300.
(vii) Senior Research Assistant	Rs. 650-30-740-35-880-40-960.
(viii) Research Associate	Consolidated remuneration ranging from Rs. 1100.00 to Rs. 1500.00 p.m.

(B) DEPARTMENT/CENTRE/PROGRAMME WHERE POSITIONS WILL BE FILLED UP

Department/Centre/Programme	*Position*	*Specialisation*
1. Civil Engineering Department	Assistant Professor/Lecturer	(i) Structural Engineering including Building Sciences (ii) Water Resources Engineering.
2. Electrical Engineering Department	Assistant Professor Lecturer	Fibre Optics and Optical Communication. Electrical Machines, Power Electronics, Power Systems, Electronics & Communications, Control & Instrumentation, Computer Engineering, Optical Communications/Optoelectronics and related areas.
3. Department of Computer Science & Engineering	Assistant Professor Lecturer SSO II	Microprocessor, Fault Tolerant Computing, Design Automation, VLSI Systems, Pattern Recognition, Artificial intelligence, Computer Graphics, Programming Languages, Compilers operating Systems, Data Basis Computer Networks, Distributed Processing, Desgin & Analysis of Algorithm, Theoretical Computer Science, Expert Systems and Robotics.
	(Selected candidates can also be asked to look after the work of Teacher Training Programme and the Education Programme for Professionals).	
4. Laser Technology Activity	Senior Scientific Officer-I Senior Research Assistant	Laser Spectroscopy Technology. -do-
5. I.D.D. Centre	Senior Design Engineer/Design Engineer	(i) Development of Training Programme in Electronics Instrument Maintenance & Instrumentation at various levels. (ii) Electronics Instrumentation. (iii) Industrial Design and Product Development. (iv) Mechanical Design and Proto-type Development. (v) Optical Instrumentation.
6. Centre for Energy Studies	*Senior Scientific Officer-I	Energy Sources, Energy Conservation and Non-Conventional Resources of Energy.
7. Centre for Management Studies	Assistant Professor/Lecturer	Marketing Management, Management Information Systems, Human Resource Management and Entrepreneurship Development.
8. Centre for Applied Research and Electronics	Senior Scientific Officer-I Senior Scientific Officer-II	Signal Processing & Digital Systems Design. (i) Signal Processing & Digital Systems. (ii) Computer Aided Design for LSI/VLSI with emphasis on Circuit Design.
9. Department of Chemistry (Photo-chemistry Laboratory)	Senior Research Assistant Research Associate	Organic Chemistry

*Applicants for the post of SSO I in the Centre for Energy Studies can also be considered for appointment as Senior Design Engineer in the same pay scale.

N.B.: The pay scales attached to the posts of Senior Scientific Officer Grade I/II, Senior Design Engineer and Design Engineer are being revised upward. The appointees to these posts will be given the revised pay scale subject to their fulfilling the revised minimum qualifications/experience prescribed for appointment to the posts with revised pay scale after the revised qualifications/experience have been decided.

(C) MINIMUM QUALIFICATIONS/EXPERIENCE PRESCRIBED FOR APPOINTMENT

(a) **For Posts of Assistant Professor**

(i) **In Civil Engineering, Electrical Engineering and Computer Science & Engineering Departments**

"Good academic record with a Doctorate Degree in a relevant field. About 5 years experience of teaching and/or research and development.

Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order either in an Institution or an Industry.

OR

In the case of persons to be recruited from Industry or professional fields, candidates should possess good academic record with recognised professional work of about 7 years which should include innovation and/or research and development."

(ii) **In the Centre for Management Studies :** "Good Master's Degree in appropriate field with minimum 5 years' experience in teaching/research in Institution of University standard, specialised knowledge in one or more specified fields/subjects with outstanding teaching/research experience/and doctorate degree or published work of equal standard would be preferred.

(b) **For Posts of Lecturer**

(i) **In Civil Engineering, Electrocal Engineering and Computer Science & Engineering Departments :** "Master's Degree in Appropriate field in Engineering/Technology; Consistently good academic record with a bachelor's degree in Engineering/ Technology; First class at Bachelor's Degree and/or Master's degree level. One year's relevant professional experience outside academic/research Institutions.

Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired professional experience within a period of five years of his appointment failing which he will not be able to earn future increment, until he fulfils this requirement.

(ii) **In the Centre for Management Studies :** "Good Master's Degree in appropriate field with 2 years Research/Industrial Research experience in an Institution of University standard/Establishment of repute. Doctorate Degree or published work of equal standard preferred.

(c) **For the Post of Senior Scientific Officer Grade-I :** "Good Bachelor's Degree in an appropriate field of Engineering or a Master's Degree in an appropriate field of Science with 5 years experience in Research and Development.

(d) **For the Post of Senior Scientific Officer Grade-II :** "Good Bachelor's Degree in an appropriate field of Engineering or a Master's Degree in appropriate field of Science with 2 years experience in Research and Development.

(e) **For the Post of Senior Design Engineer :** "Good Bachelor's Degree in appropriate field of Engineering or a Master's Degree in appropriate field of Science with 5 years experience in Design and Development work in an established concern. Good record in Development of Instruments. Experience in inter-disciplinary projects and Development of Instruments for teaching, Research and Production."

(f) **For the Post of Design Engineer :** "Good Bachelor's Degree in an appropriate field of Engineering or a Master's Degree in appropriate field of Science with 2 years experience in Design Development and Maintenance of Instruments.

(g) **For the Post of Senior Research Assistant :** B. Tech./B.E. for posts in Engineering disciplines. Master's Degree in appropriate field of Science/Mathematics in the case of other disciplines.

(h) **For the Post of Research Associate :** Ph.D. in the relevant field.

Prescribed applications forms may be obtained from Deputy Registrar (Estt-I) Indian Institute of Technology Delhi, Hauz Khas, New Delhi-16 either in person or sending by post a self-addressed stamped envelope (size 10 x 23 cms) bearing postage stamps of 95 paise latest by **13-7-1987**. Last date for submission of application forms alongwith Crossed Indian Postal Orders worth Rs. 7.50 (No fee for SC/ST candidates) is **20-7-1987** for candidates in India and **27-7-1987** for candidates from abroad.

Persons employed in Govt./Semi Government Organisations/Autonomous Bodies must submit their applications through their employers.

UNIVERSITY OF MADRAS

Applications are invited by the Registrar, University of Madras, Chepauk, Madras-600 005 upto **15-7-1987** for the posts of Professor/Reader/Lecturer/Technical posts in the following Departments of the University.

S. No.	*Department*	*Prof.*	*Reader*	*Lecturer*	*Tech. Posts*
1.	Sociology	..	..	1	..
2.	Economics	1	1(SAP)	2	..
3.	Econometrics	..	..	2(SAP)	..
4.	Commerce	..	1	1	..
5.	Criminology	..	..	1	..
6.	Psychology	..	1	..	..
7.	Legal Studies	..	1	1	..
8.	Journalism/Communication	..	1	..	..
9.	Management Studies	2	1	5	..
10.	Centre for South and South-east Asian Studies	1	..	2	..
11.	Philosophy	1	1	..	..
12.	Education	1	..	..	..
13.	CAS in Botany	..	3	1	..
14.	Mathematics	1	..	2	..
15.	Statistics	..	..	1	..
16.	Biophysics & Crystallography	..	1	1	..
17.	Nuclear Physics	..	..	2	..
18.	Organic Chemistry	..	2	1	..
19.	Biochemistry	1	..	..	..
20.	Applied Geology	..	..	1	..
21.	Tamil Literature	1	1	..	..
22.	Telugu	1	..	..	..
23.	Kannada	..	..	1	..
24.	Arabic, Persian & Urdu	..	..	1	..
25.	English	..	..	1	..
26.	Defence Studies	1	1	..	..
27.	Centre for Anna Studies	..	..	1	..
28.	Saiva Siddhanta	..	..	1	..
29.	Jainology	1	1	..	..
30.	Islamic Studies	1	1	1	..
	P.G. CENTRE, VELLORE				
31.	Zoology	..	1	2	..
32.	Economics	1	1	2	..
33.	Chemistry	1	1	2	..
	COMPUTER CENTRE				
34.	Head of the Computer Centre	..	..	..	1
35.	Systems Analyst	..	..	..	3
36.	Application Programmers	..	..	..	2
37.	Console Operator	..	..	..	1
38.	One post of Librarian, Guindy Campus Library.				

cale of Pay

Professor : Rs. 1500-60-1800-100-2000-125/2-2500/-.

Reader : Rs. 1200-50-1300-50-1900/-

Lecturer : Rs. 700-40-1100-50-1600/-.

Head of the Computer Centre : Rs. 1500-0-1800-100-2000-125/2-2500/-.

Systems Analyst : Rs. 1910-110-2900/-.

Application Programmers : Rs. 1340-75-1715-90-2435/-.

Console Operator : Rs. 1045-45-1450-65-1775/-.

Librarian : Rs. 1200-50-1300-60-1900/-.

(All posts carry allowances admissible to the scale).

General Qualifications

Professor : A first or second class Post-graduate degree in the subject or related subject, a Ph.D. degree in the subject with not less than 10 years of teaching and research experience. Administrative experience preferred.

Reader : A first or second class Post-graduate degree in the subject or related subject a Ph.D. degree in the subject with not less than 5 years of teaching and research experience.

Lecturer : A first or second class Post-graduate Degree in the subject with not less than 50% of marks or grade 'B' under grading system, a Ph.D. degree in the subject with not less than 3 years of teaching and research experience.

Computer Centre

Head of the Computer Centre : Ph.D. in Computer Science or in a related field with substantial research experience in one or more areas of Compute[illegible]e. Such experience shou[illegible] supported by publica[illegible]rnals, presentation in nati[illegible]onal conferences, research supervision, membership in professional societies/academies, etc. in addition to his/her own specialisation the candidate should have a good knowledge of the State of the Art in all forefront areas of Computer Sciences and be able to give leadership and direction and develop various aspects of computer science education and research. He/She should also have administrative experience, and ability to manage a large Department and to assist in the practical applications of computerisation in various aspects of University administration.

Systems Analyst : A degree in Computer Science on a related discipline with a minimum of 10 years experience or a master's degree in Computer Science or a related discipline with a minimum of 3 years experience. Documented proof of expertise in the successful and error-free execution of challenging jobs using the computer under constraints of cost, time, personal, etc.

Application Programmer : A degree in Engineering or Science or a Diploma in Computer Science or related field with a minimum of 3 years experience and documented proof of expertise and aptitude in computer programming.

Console Operator : A degree with a minimum of one year experience in console operations and the operation of peripheral devices of a modern computer centre.

Librarian, Guindy Campus Library : A Master's Degree in any discipline and a Degree or a Postgraduate Degree in Library Science, with a minimum experience of three years as Librarian or teacher of Library Science.

Note: For qualification to the post of Professor/Reader in the Department of Defence Studies, the intending applicants may see prospectus.

The rules of reservations for Open Competition (32%), Backward Class (50%) and Scheduled Castes/Scheduled Tribes (18%) will be followed and also Communal Roster System adopted for the cadre of Lecturer only.

The Syndicate reserves the right (i) to de[illegible] on reservations for the particular de[illegible] for each post, and (ii) to fill u[illegible]quential vacancy if any.

A[illegible]viously applied to any [illegible] earlier advertisement in [illegible]versity should specifically apply again for the post now advertised.

Further details regarding qualifications, field of specialisation and other requirements for these posts and specimen copy of application form may be obtained from the Registrar, University of Madras, Chepauk, Madras-600 005 on requisition together with a self-addressed Re. 1/- stamped envelope.

Requisition for applications should be made so as to reach this office **on or before 10-7-1987**.

N.B. (1) Applications should be made only in the form prescribed by the University.

(2) Applications received after the last date will be summarily rejected.

(3) Candidates abroad may apply in plain paper, enclosing their BIO-DATA (8 copies).

(4) Candidates with outstanding academic/research record will be considered for higher start in the scale.

UNIVERSITY OF RAJASTHAN

JAIPUR

NOTIFICATION

The University will reopen for the session 1987-88 on Tuesday, the 7th July, 1987. Applications for new admissions to the following courses provided by the University are invited on the prescribed form by the dates mentioned below in para 2 :-

1. Three year B.A., B.Sc. & B. Com. (Pass) Course.
2. Two year B.A., B.Sc. & B. Com. (Hons.) Course.
3. Three year B.Sc. (Home Sc.) Course.
4. Two year M.A. Course in Hindi, English, Sanskrit, Philosophy Urdu, Music, Drawing & Painting, History, Economics, Public Administration, Political Science, Sociology and Psychology.
5. Two year M.Sc. Course in Physics, Chemistry, Zoology, Botany Geology and Home Science.
6. Two year M.A./M.Sc. Course in Mathematics, Statistics and Geography.
7. Two year M. Com. course in Accountancy and Bus. Statistics, Business Administration, Economic Administraiton and Financial Management.
8. One Year Higher Proficiency Certificate Course in English.
9. Four months Certificate Course in Spoken English.
10. One year post-graduate Diploma in Indian Culture.
11. One year Certificate and two year Diploma Course in French, German and Russian.
12. Three Year Post-graduate Diploma Course in Cost & Works Accountancy.
13. One year post-graduate Diploma courses in (i) Banking and Finance and (ii) Co-operation.
14. One year Post-graduate Diploma Courses in (i) Human Ecology (ii) Environmental Studies; and (iii) Population Ecology.
15. One Year Certificate and Two Year Diploma Course in Stenotyping (English and Hindi).
16. One Year Post Diploma in German.
17. 8 Weeks Certificate Courses in (a) Basic Programming (b) Fortran Programming (c) Cobol Programming (d) Pascal Programming.

2. The last date for receipt of application forms for new admissions to various classes will be as under:-

(i) **For First Year TDC Classes :** 22nd June, 1987 without late fee and 29th June, 1987 with a late fee of Rs. 10/-.

(ii) **For Second Year TDC Classes :** 1st July, 1987 without late fee and 8th July, 1987 with a late fee of Rs. 10/-.

(iii) **For all other classes :** The date falling on the 15th day from the date of declaration of result of the qualifying exam. of this Univ. Without late fee and 22nd day with a late fee of Rs. 10/-.

No Application forms will be entertained after the expiry of the last date for receipt of application forms with late fee.

3. The prescribed application form (with Prospectus containing relevant information for new admission) can be obtained from 17th June, 1987 on cash payment of Rs. 5/- per form from Rajasthan Vishwavidyalaya Sahkari Whole-Sale Upbhokta Bhandar Ltd., Univ. Campus Jaipur, M/s Best Book Co. Univ. Campus, Jaipur, Dean Students Welfare, Jaipur, University Maharaja's College, Jaipur, University Maharani's College Jaipur, University Rajasthan College Jaipur, and the University Commerce College, Jaipur. Candidates seeking admission to M.Sc. Geology can obtain the application forms from the Head of the University Department of Geology-Station Road, Udaipur. Application forms can also be obtained by post on remittance of Rs. 10/- (including postal charges of Rs. 5/-) per form by money order to The Registrar, University of Rajasthan, Jaipur, stating the purpose of remittance, and giving full address on the M.O. Coupon.

4. Eligibility conditions and other rules for admission are given in the Prospectus.

5. Application forms for admission to the Institute of Correspondence Studies, University Studies in Law, R.A. Poddar Institute of Management, Department of Library Science and Department of Dramatics should be obtained from the Director of the Institute/Head of the Department concerned.

6. Enquiries regarding M. Phil. Course and registration for the degree of Ph.D should be made from the Department concerned.

REGISTRAR

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg,
New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429 Telex 31 5578 AIU IN
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055, Tel. 529157